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The Journal of the Fire Protection Profession

DECEMBER 25, 1929

Season's Greetings

TO our many friends in the fire service we extend most sincere good wishes for a New Year filled with happiness and prosperity.

To them, too, we express our deepest gratitude for their help in making the past year one of the greatest in our history.

AHRENS FOX

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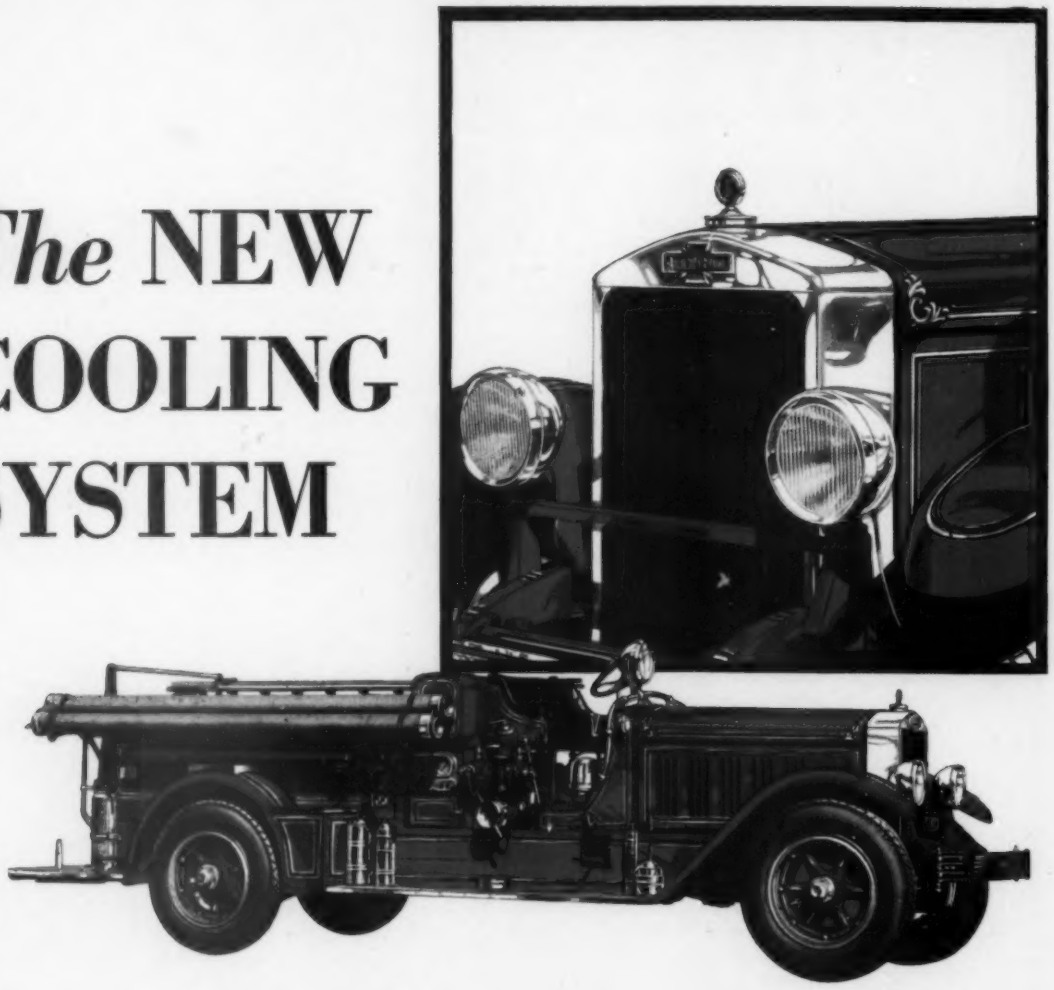

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President and Advertising Director

FRED SHEPPERD
Managing Editor

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H. S. ESSEX, Advertising Manager; ROBERT H. LOCKWOOD, Editor; N. N. WOLPERT, Asst. Editor
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Let's Make it a Happy New Year!

"NOT what is wished and prayed for does a man get, but what he justly earns. Wishes and prayers are only gratified and answered when they harmonize with his thoughts and actions."

¶ To merely hope that the coming year will be filled to the brim with happiness and prosperity for all our good friends in the fire service is not enough.

¶ It shall be the fondest, most wholehearted effort on the part of every member of the FIRE ENGINEERING staff to do everything possible within our scope to help make your dreams come true.

The Publishers

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Entered as second class matter April 13, 1929, at the Post Office at New York, N. Y., under the Act of March 3, 1879.

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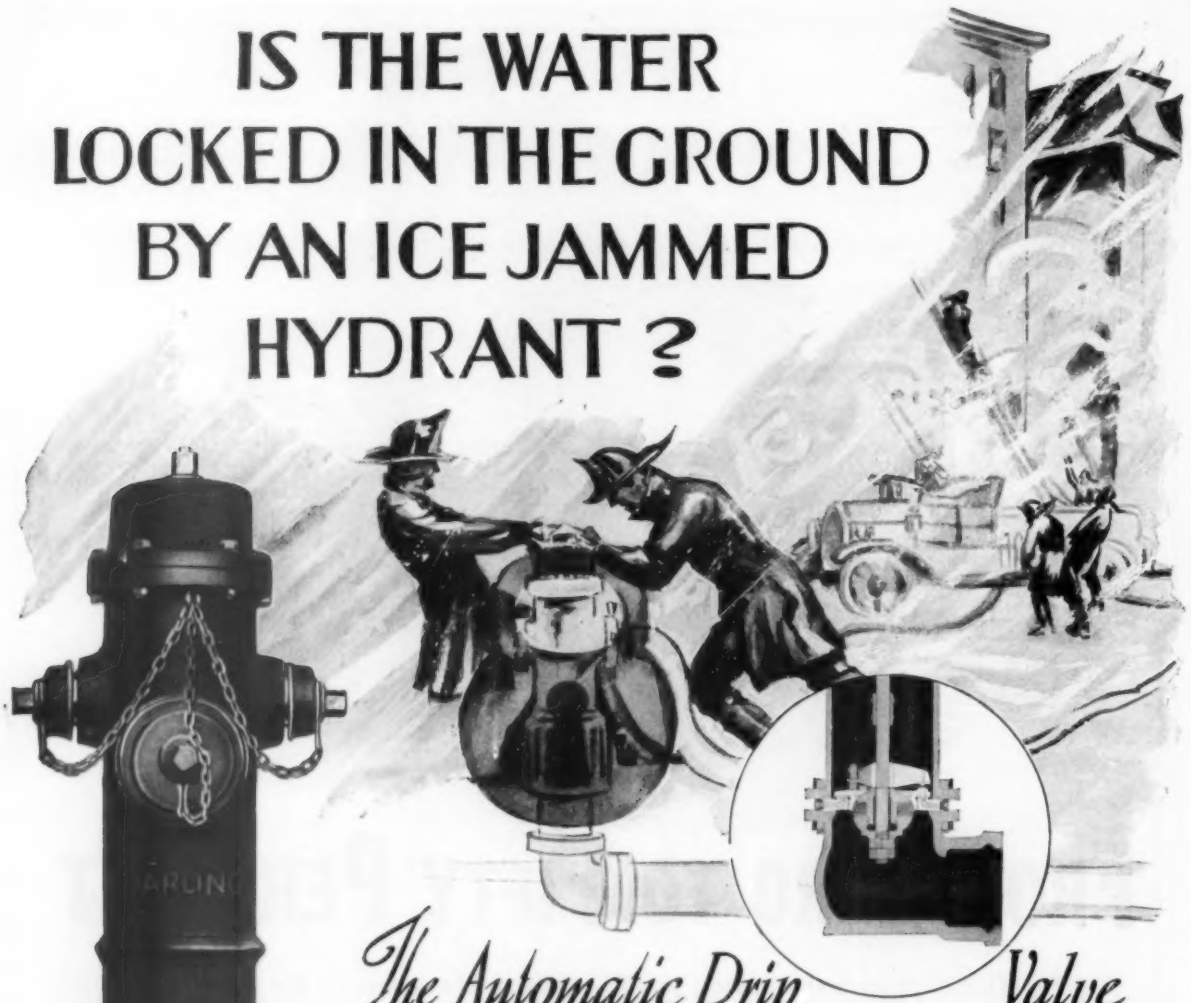

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977

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The Journal of the Fire Protection Profession

VOLUME LXXXII DECEMBER 25, 1929 NUMBER 26

The Small City Fire Department—Its Organization and Equipment

Training the Part-Paid Department — The Matter of Discipline—Choosing the Equipment—Question of Housing

By Chief J. E. TAPLIN, Fire Department, Blackwell, Okla.

DISCIPLINE and organization are just as important factors in the modern Fire Department of the smaller city and village as they are in that of the larger municipality. Training, too, must be considered in the small as well as the larger organization. The following paper contains many useful suggestions along these lines:

Chief J. E. Taplin, Blackwell, Okla.

The day of the strictly volunteer fire department is rapidly passing. Time was, when the small village or town, with only its bucket brigade, a few hand chemicals, or its hand-drawn chemical engine or hose-cart, could well make use of a purely vounteer organization. Modern living conditions, brought about by the use of the popular and reasonably priced motor vehicle, have resulted in the evolution of the modern small city of a few thousand inhabitants, with its water works, electric lights and sewer system.

It then follows as the night, the day, that the fire department must keep pace with such changed conditions, the result being that there are few cities of one thousand or more inhabitants that do not have some type of motor fire apparatus, and one or more paid men. It would seem that one paid man for every thousand inhabitants would not be an exorbitant tax on its citizens. Such paid men should be supplemented by volunteers, or part-paid men of sufficient number to man the apparatus, and place all the fire-fighting equipment in service without delay.

The inevitable result of the evolution of the modern small city fire department is an organization of paid and volunteer or paid and part-paid firemen. For efficiency and discipline the latter combination is preferable. The chief of the department can be either a paid or part-paid man. In smaller cities employing only one or two full-paid men, some business man, with known executive ability, who has the interest of the fire department at heart, might well be made Fire Chief. The payment of a small, regular salary to him for such services, would be advisable. No objection can be made to one of the full-paid men being the Chief of the department, provided he has the executive ability to organize and drill such a department.

The successful organization of a combination paid and part-paid department will depend largely on the following: Personnel, Equipment, Housing, Discipline, Training, and Departmental Activities. There is no greater contributing factor to the efficiency of a fire department, than the selection of the men of which it is comprised. Next to the chief, the selection of regular, full-paid men should receive the most consideration. Men of good physique, regular habits, and good personality should be employed as the foundation of such a department. Firemanship should be regarded as a profession, and only such men as wish to enter it should be employed. Salaries sufficient to enable the average American family to live should be paid. Only under such conditions can men of sufficient intelligence and ability be retained in the fire service.

Selection of the Men

The part-paid men should be selected with a view to their availibility in case of fire. At least one company should be selected from business men, or employees in the business district. Others whose employment will not interfere with their response at fires may be secured. Drivers of delivery trucks can usually respond without interfering greatly with their business; high school boys can be used to good advantage as part-paid men; the selection of the whole being made with the view of creating an harmonious and loyal bunch of firemen, who can be interested in the safety and welfare of the city.

Choosing the Equipment

The equipment of this type of fire department cannot be adequately discussed in this article, for the reason that such an organization is adaptable to cities of from one thousand to fifteen thousand population and obviously their requirements would widely vary. Suffice it is to say that your state inspection bureau should always be taken into consultation when considering the purchase of motor fire apparatus for your city, and their recommendations be given serious consideration before purchase is made. In the matter of minor equipment, all cities should be liberal to their fire department. Soda and acid extinguishers, five-gallon hand pump cans, spanner wrenches, door openers, kelly and claw tools, etc., should be liberally provided. A number of double male and double female hose connections should be

"By no means the least important activity of a modern Fire Department is 'selling itself to the public.' Regardless of how good the personnel of the department may be or how well it is equipped and disciplined, unless the public knows your thoughts, ambitions and plans, it will not give the department full credit for its worth."

carried on each truck, thus enabling both forward and backward layouts to be made. No fire department, regardless of how small, should be without adequate salvage covers to meet the needs of their business districts, and more consideration should be given by all departments to salvaging operations, thereby saving much useless waste in the ordinary fire-fighting methods.

Housing of the Fire Department

Housing the fire department is of major importance to its efficiency and morals. The day was, during the regime of the horse-drawn apparatus, when the first station more resembled the livery stable in its appointments and furnishings, and it is to be regretted that, with the advent of motor fire apparatus, many cities still seem satisfied with the same type of station. Beautiful new fire apparatus, resplendent in its new coat of red and gold, certainly deserves an apparatus room equal to the best motor sales rooms of the city. Such a room, cheerful, well-lighted and well-painted, proves an incentive to the men to keep the apparatus immaculately clean, and in a condition that makes it a pleasure to show visitors the station and equipment.

A home-like living room, well furnished and provided with reading matter and other entertainments, tend to make the regular fireman more contented, and satisfied with his employment.

The dormitory or sleeping room that is equipped with good beds, and clean linen, helps to secure many young men as sleepers, who are glad of securing such a home, and they make excellent part-paid men. A club room supplied with recreational features, tends to interest the volunteer or part-paid men, and much of their idle time will be spent in the station. A number of call men present when an alarm comes in is quite an asset, as the apparatus goes out better manned for making the first layouts.

The Factor of Discipline

The next factor to be considered in the building up of volunteer or part-paid department is discipline. For a better conception of the meaning of the word discipline, let us see what Webster says:

1. To develop by instruction and exercise; train.
2. To accustom to regular and systematic action.
3. To improve by corrective and penal methods; to chastise.

The first two of these definitions serve best to explain what discipline means in the training of a fire department. The appointment of the officers and members of a fire department should receive first consideration.

The Chief should be appointed by the city administration in whatever manner the state law or city charter provides. The regular, full-paid men should be named in like manner, but only on the recommendation of the Chief. The part-paid men should be named by the Chief, after being recommended by the captains of the various companies. The administrative end of the department should be solely under the control of the Chief, and he should be responsible to his city administration for the proper discipline of the same. All fire department duties, whether at fires or around station, should be strictly under the direction of him or his officers, and the discipline of the part-paid men be as mandatory as though all were fully paid. A social or fraternal organization may well be maintained, over which the Chief has no more jurisdiction than any other member. The adoption of a constitution and by-laws, the election of officers, and provisions for some sort of a club fund, provides an activity for the department, and the social affairs put on by such association tends to interest and bind together its membership.

Drill Tower Erected in Los Angeles

Firemen are here shown practicing on the drill tower erected in Los Angeles, Cal., at a cost of $29,500. The tower is fitted with various appliances to give firemen the needed instruction.

Method of Pay Big Factor in Discipline

The method of pay, and the distribution thereof, can be made a big factor and aid in discipline. Many methods of pay are in vogue in cities which need not here be recited. A new method adopted by a department in a city of twelve thousand people, seems to produce results that were lacking in other methods of pay. The former plan paid each call man two dollars for every fire call, and attendance at weekly drills was obligatory. If a member was absent on his company drill night, one dollar was deducted from his pay. Results were fairly good in attendance at both fires and drills. The cost for this service averaged about one hundred dollars per month, which amount was included regularly in the yearly budget.

The growth of the city made necessary the doubling of the number of full-paid men; nine regular firemen now being employed, working two platoons. It was found that most grass fires, trash fires and automobile fires could be handled as still alarms. The result was that the amount the call men had been receiving was cut down far below previous receipts.

A lack of interest and attendance at once became apparent at both fires and drills. Previous results from the services of the call men had been so good that the Chief of the department regretted such falling off of results, and, after a careful study of conditions, recommended the following plan: Inasmuch as the average cost of the call men to the department had been one hundred dollars per month, it was recommended that this amount be paid them regularly every month and divided in proportion to the total number of attendances at fires and drills. Thus each call man gets just as much for attendance at drills, as at fires. Results from this plan have been very satisfactory. There has been an eighty-five percent attendance at drills since its adoption. If no general alarm occurs during the month, the same amount is paid and divided between the call men in proportion to their attendances at drills. The net result of such a plan is that out of a total of fifteen call men the city can depend upon from six to ten well-trained firemen whose services cost less than the salary of one regular man. From the foregoing discussion, it is apparent that the method of pay has a far-reaching effect on the discipline of this type of department.

Training the Part-Paid Department

The training of a part-paid department can best be done by arranging weekly drill periods, preferably at night, at which both regular and call men participate. Actual layouts of equipment, and practice in the use of all appliances commonly used in fire-fighting, should be given. Contests between individual firemen and different companies, on which time is taken, stimulates an interest in these drills, and is of great value in making efficient firemen. Lectures on simple hydraulics, and discussions on such subjects as "What is centrifugal force?" "Explain the principles of the centrifugal pump"; "The rotary gear and piston pumps"; "What is a vacuum?" "What causes water to rise in a vacuum?" and scores of others of like nature, are very interesting to the average volunteer fireman. Practice in the tying of standard fire department knots should be held frequently enough, that all members can quickly and efficiently secure a line for any purpose.

If the men are allowed pay for drills there will always be a good attendance, and at least one and one-half hours' instruction can be given at each period. Thus it will be seen that with the institution of regular weekly drill periods and the method of paying the volunteer men, as outlined above, the discipline of the part-paid department is largely solved. It is not necessary that all men drill weekly. If a large number of call men are used, one-half can drill each week, thereby giving each man two drills per month, the total number being smaller. Drills every two weeks are to be recommended.

Rules and Regulations

Just a word in regard to rules and regulations. In a department of this character, the fewer rules the better; yet some are necessary, and such as are needed should be printed in regular

(*Continued on page* 1194)

Oil Soaked Floors Make Big Losses

Here Is All That Was Left After a Fire at a Jersey Bolt and Nut Plant

In this case the fire had fully involved the building upon the arrival of the department. Early collapse of the various floors, due to weakening of supports and excessive load thereon, made inside work extremely hazardous. Note the warped steel work, which gives some indication of the intensity of heat encountered at this blaze.

Although plants manufacturing bolts, nuts, and similar small metal parts contain little inflammable material outside of oils, fire loss records show that a great number of such buildings are leveled each year by fire. A check-up indicates that in most instances heavy fire losses are due to presence of oil soaked flooring, along which fire travels with great speed and intense heat. This article of the series on "Fire Fighting" outlines the essential points in connection with such fires, and offers suggestions for handling fires in establishments of this type.

TWO types of structures are commonly employed as factories for the production of small metal parts such as bolts, nuts, screws, etc.: the brick with wood joist building, and the semi-fireproof building largely of concrete construction.

The first class of structure includes both old type buildings as well as the modern mill constructed plants. In the first case, the fire hazard is appreciably greater, due to the comparative weakness of floors.

Large open areas are characteristic of these types of establishments, and heavier materials are generally the rule. Insofar as combustible material outside of the building itself is concerned, there is very little of this at present in the average plant. Packing boxes may be on hand in limited numbers, benches of wooden construction, and partitions, but outside of these there is usually but little material on hand which would cause the department any particular trouble in extinguishing fires.

The one inflammable substance which is commonly encountered in practically all factories of this nature is oil used in various manufacturing processes, including lubricating work and tempering. In the latter instance, the treating furnaces are on hand, and represent a fire hazard insofar as the starting of fire is concerned, but do not represent a particularly severe proposition from the angle of fire fighting.

The one factor which contributes most to fire loss in metal working plants of the type described above is the presence of oil soaked flooring, with oily wastes improperly stored. Fire originating in such waste, due to spontaneous ignition or other causes, is apt to quickly involve the flooring whereon the fire will spread throughout the plant. The absence of fire stops permits the blaze to reach large proportions, and ultimately involve the entire structure if usual openings from floor to floor are present.

Where fire starts from spontaneous ignition of oily waste, it may originate after working hours, and before the fire is discovered it may completely involve the plant. Such has been the experience of many fire departments.

One feature which increases the danger to the men operating around such a fire is the presence of heavy machinery and materials on the various floors. The weakening of the floor supports, floor beams, or pillars may mean early collapse of floors and unless the men are fully on the alert there is a possibility of injury or loss of life.

Where fire originates in the basement of a building of this type, it may first involve the basement, and then

Power Wires Were Burned Off at This Machine Shop Fire

So fierce was the blaze which leveled this plant that the department was unable to enter the structure at any time during the course of the blaze. An idea of the complete destruction may be noted at the left hand side of the picture where the super-structure was entirely leveled. Power wires entering the building were burned off early in the fire, adding another danger to the many encountered by the men operating at the blaze.

spread upward by any of several channels available. Reaching the upper floors first, it spreads out and then proceeds to gain a hold on floors below.

Where the fire originates on one of the upper floors, it usually travels along the oil-soaked flooring, first involving one floor, and then as the fire increases in intensity, it rises to upper floors by means of open hatchways, stairwells, and other vertical shafts.

It is not a difficult matter to extinguish a fire involving but one floor where it has been burning for a short time. It can be quickly washed out with a stream of water played over the floor. On the other hand, when the fire has been burning for some time and has gone through the floor boards, then the task is far more difficult.

Fighting the Fire

Assuming that the fire starts during the night, when the factory is closed, and that upon discovery it has fully involved one floor and is spreading upward, the suggested method of procedure would be as follows:

First determine location of hoistway, or elevator shaft, which is frequently found near the front of the building. Get a deck gun, from the first company arriving, in position opposite this shaft, and stretch two lines from engine placed at nearest hydrant to the fire, one connected to the deck gun and the other being fitted with 1¼-inch nozzle and stretched up stairway to fire floor.

The deck gun will accomplish two things: it will serve to prevent exterior extension of fire and will also prevent fire rising in shaft, if shaft is within reach of the stream. The large tip on the deck gun will insure good range of stream and sufficient water discharge on the fire. The line which is stretched to the stairway will operate to prevent extension of fire to floors above, and will subsequently operate in on the blaze.

Second due engine company stretch at once to the rear of building and get line in operation on the fire floor, in an effort to hold the fire from spreading to floors above.

Buildings of this type are usually not high so that standpipe equipment probably will not be available. Furthermore, the nature of the occupancy of this type of establishment does not necessitate sprinkler systems, so that the department will not likely have the assistance of these auxiliary appliances in their work.

If the fire is spreading too fiercely on the fire floor, it may be necessary to stretch from the floor below and thus gain a foothold in operating on the blaze. If sufficient men are available, have lines stretched to fire floor by way of ladders or fire escapes, at rear of building, to enable the department to close in on the fire as quickly as possible.

Ventilation Is Important

Remember, this type of blaze requires fast work in order to check the fire from spreading to floors above. Quick coverage of the floor with water will accomplish a tremendous amount of good in holding the fire, if this work is quickly done.

Members of first truck company should be ordered at once to the roof of building to ventilate and thus draw the fire toward one channel within the building, which can be covered on the upper floors by streams as engine companies roll in.

If building opens on streets, and if wind is blowing from a particular direction, best results can be secured by operating with the wind—that is, from the side of the building which the wind strikes. Proper ventilation by opening windows all around on the fire floor will expedite proper ventilation of the floor, and with the assistance of the wind, men can operate from the windward side and quickly follow the fire through.

Due to the heavy materials present in buildings of this type, great care must be exercised in sending men in on floors below the fire floor, if fire has been burning for some time. There's a possibility of floors above giving way as a result of weakening of floor beams where they rest in the walls or of columns supporting floors.

Bismarck, Mo., Votes for Fire Department—Bismarck, Mo., has approved a bond issue, part of which will be used for a fire department.

Hartford, Conn., May Have New House—Hartford, Conn., is considering a $70,000 appropriation to be used for the construction of a fire house. The present station of Company No. 6 is in poor condition.

New Type of Law Will Curb Arsonist

Measure Already Adopted by 27 States Makes Provisions More Explicit for Conviction of the Fire Bug — Severe Penalties Reduced

By S. L. LEGREID, State Fire Marshal of Illinois

HERETOFORE chiefs and others interested in the prosecution and conviction of the arsonist have often found themselves against a stone wall, even though they had prepared their cases against the criminal with the utmost care. In spite of apparent evidence sufficient to convict, the guilty one more often than otherwise was enabled to escape through the loopholes in the laws. Today, however, that condition is gradually improving. A uniform law, adopted so far by twenty-seven of the states, has been framed so as to avoid the legal pitfalls which existed in the old statutes, and the prospects are that the lot of the firebug will not be as happy as it has been up to now. The following paper describes the salient features of this new legislation:

S. L. Legreid
Fire Marshal of Illinois

A few months ago I made a public statement through the press that the arson law of Illinois was so full of holes that it was almost impossible to secure convictions. The statement was startling—to the public. It was not startling to the Cnief of the Fire Department, nor to anyone who has had anything to do with investigating incendiary fires or prosecuting fire-bugs.

Ordinarily it would have been the height of folly for a public official to make such a statement, for it would serve only to encourage those who might be inclined to touch a match so as to collect the insurance. But at the time the Illinois legislature was in session and was considering a bill introduced at my request, commonly known as the Uniform Model Arson law. That bill subsequently became a law and since July 1, has been in effect in the state.

It is significant to note that the bill passed both houses without a dissenting vote. It is the biggest step forward that Illinois has taken in all the years of its statehood to make the statutes properly fit the crime of arson and kindred crimes.

Something was wrong with the old arson law of Illinois, for case after case was investigated and only a few of them prosecuted. Convictions failed in most of the cases prosecuted. Always the evidence, while seemingly complete to the layman, was lacking in some of the particulars necessary to satisfy the law.

The Old and the New Law

I will outline briefly the loopholes in the old law and then explain how the new law has closed the gaps.

First, under the old law it was necessary to connect the defendant directly with setting the fire before he could be convicted. This might be done by direct or circumstantial evidence, but if circumstantial evidence was used, the chain must be complete, as no case could be any stronger than its weakest link. This made it almost impossible to mete out punishment in the ordinary business fire, because the owner or proprietor always was able to prove that he was elsewhere at the time of the burning. We might be able to prove that the origin of the fire was incendiary without any question, that the proprietor was in financial difficulty, that he had taken out additional insurance before the fire, that he had removed most of his goods to another location before the fire, that he had purchased candles, gasoline or other volatile oils, bolts of flimsy cloth or other inflammable material and had taken them to the building before the fire, and that these same materials were used in setting the fire. Yet, if the proprietor could prove that he was elsewhere at the actual time of the burning, he could usually defeat the law.

In other words, the principal in the crime was the person who touched the match—usually the one who was hired to do the job. It is true that the owner or proprietor might be prosecuted as the accessory before the fact, but if the identity of the actual fire-bug was unknown there would be no chance in that direction. He might be prosecuted for conspiracy, but in that case also it would be necessary to know the identities of parties to the conspiracy and to have sufficient evidence to connect them with the crime. Also, to show that two or more persons conspired or agreed together with fraudulent or malicious intent to obtain money by false pretense or to commit a felony.

Criminals, always alert to the loopholes of the law, were quick to take advantage of the situation and we seldom had a case of burning to defraud but that the culprit had a beautiful alibi.

Under New Law Can Convict Absent Principal

The new law makes it possible to prosecute the one who "aids, counsels or procures" the burning. Furthermore, it contains these important provisions:

"Any person who wilfully and maliciously attempts to set fire to or attempts to burn or to aid, counsel or procure the burning of any of the buildings or property mentioned in the foregoing sections, or who commits any act preliminary thereto, or in furtherance thereof, shall upon conviction thereof be sentenced to the penitentiary for not less than one nor more than two years and fined not to exceed $1,000.

"The placing or distributing of any flammable, explosive or combustible material or substance, or any device in any building or property mentioned in the foregoing sections in an arrangement or preparation with intent to eventually, wilfully and maliciously set fire to or burn same, shall for the purposes of this act constitute an attempt to burn such building or property."

So, we now have a pretty good chance of convicting Mr. Crooked Business Man or Mr. Crooked Citizen, even though he may show himself on the register of a hotel miles away when his fire starts.

Can Now Convict One Caught in Act

The second weakness of the old law was that it carried no provision against a person caught in the act of making ready for a touch-off. Often we have received advance information that a fire was to occur. Sometimes it was possible to set a trap so that the culprit would be watched as he proceeded with his preparations. But, under the old law the crime of arson could not be committed unless there was an actual ignition and charring of wood. Of

"Altogether the new law is decidedly workable and it will enable us to put an effective curb on the crimes of burning. It has been adopted in twenty-seven states and has been upheld in the supreme courts of New Jersey and Tennessee in all essential features."

course, we could not stand by and permit the culprit to touch the match. The result was that, while a fire was prevented, there was no statute under which the guilty person could be punished adequately. The provisions of the new law just quoted show how this has been remedied.

One Who Burns Own Building Can be Punished

The third weakness of the old law was that it was not arson to burn one's own building. The building had to be the property of another person. This made it possible for many culprits to evade the law. A man who held title to a piece of property could burn it in order to spite creditors or mortgagor, if he was about to be dispossessed. He could burn his home to spite his family. If he burned his building for the purpose of collecting the insurance, he might defeat the law by failing to make a claim for insurance. We have had these things happen and have been helpless because it was not arson in Illinois to burn one's own building. The new law removes this restriction altogether and it will now be possible to reach all those who set fire to buildings, regardless of who owns them.

Generally speaking, the new law is a careful rewriting of the old statute so as to cover properly all of the crimes and attempted crimes of wilful burning and to make the punishment fit the crime in each case.

Reduction of Penalty Great Help

For instance, the penalty for arson under the old law was one to twenty years. The law made no distinction as between different classes of buildings so far as the penalty was concerned. This made it difficult to secure convictions except in extreme cases. Juries often shied at assessing such a stiff penalty. I feel sure that the reducing of the penalties will be a great help to us in prosecutions, as juries will be more willing to render a verdict of guilty under the new law. I could relate several instances of where juries, after voting a verdict of not guilty, have gone to the State's Attorney and said:

"You had a good case and surely presented it in splendid shape, and we really believed the fellow guilty, but we did not have the heart to vote guilty and impose the severe penalty."

In other cases, they have made the same statement except as to the origin, saying:

"You did not prove that he actually set the fire, at least that anyone saw him do it."

Neither of the foregoing excuses could be offered under the new law. If it can be proven beyond a reasonable doubt that the defendant or defendants aided, counseled, or procured the burning, or committed any act preliminary thereto, or placed or distributed flammable, explosive or combustible materials within any building or property in an arrangement or preparation with intent to burn or procure the burning or setting fire to the same, then we would have a good case and should be able to secure a conviction.

Penalties of New Law

The new law applies the penalty of one to twenty years only to dwellings and buildings which are "parcel thereof, or belonging to, or adjoining thereto." Under the old common law arson was a crime against the habitation and our new statute preserves this idea in making the heavy penalty apply to this class of property. The penalty is one to ten years in the penitentiary for burning other classes of buildings.

The penalty for burning to defraud was one to ten years under the old statute. It is one to five under the new.

Under the old law a penitentiary sentence of one to six years was provided for burning a stack of grain, pile of boards or coal, street car, railroad car, automobile and similar personal property, whereas the new law cuts this in two.

The penalty for attempted burning under the old law was two years in the penitentiary and a fine up to $5,000. The new law cuts the fine to $1,000.

Law Adopted in Twenty-seven States

Altogether, the new law is decidedly workable and I believe it will enable us to put an effective curb on the crimes of burning. It has been adopted in twenty-seven states and has been upheld in the supreme courts of New Jersey and Tennessee in all essential features. It has reduced the annual fire losses fifty per cent in New Jersey and Georgia. It is indorsed by the National Board of Fire Underwriters, the Fire Marshals' Association of North America, the Chamber of Commerce of the United States, the National Association of Credit Men and by all others interested in fire prevention.

Under this statute the arson squads which we have organized throughout the state have a splendid opportunity of securing results. It is more important than ever to secure the evidence while the case is hot. If we connect the guilty one in any way with the responsibility for the fire, we have a good chance to convict him. But if we do not get the evidence while it is hot, our golden opportunity is gone.

Work Accomplished by Arson Squads

Even under the handicap of the old law many of the arson squads did conspicuous work and secured highly gratifying results. An important case was worked up almost entirely by the squad in two of the larger cities. In one of the smaller communities, the arson squad gathered such an impressive collection of evidence that the guilty one fled for parts unknown immediately after a representative of my office pieced the evidence together and confronted him with it. This was in a community where the firemen had never experienced an incendiary fire before. It shows what can be done when the local boys are on the job. Had they waited, all of the evidence would have been removed from the building and there would have been no case.

Detroit is a conspicuous example of what can be done by an efficient arson squad. Certain members of the police department are assigned to this squad and they investigate every fire of suspicious circumstances. They have become experienced in this class of work and have struck so much terror to the hearts of the firebugs that incendiary blazes have been reduced to a great degree.

Fear of immediate investigation will halt almost any firebug or any citizen who is inclined to have a crooked fire. He will take a chance if he feels that it may be several days or a week before the state fire marshal can send an investigator, but he does not like the idea of the local authorities being on the job before the ashes are cool. That is the great idea back of the arson squads. An active arson squad means a sure and swift investigation and the preservation of every bit of evidence which it is possible to recover from the ruins. It means the checking of movements and activities of the guilty party at once, so that the facts may be obtained while they are fresh in the minds of witnesses.

Community Will Cooperate with Local Arson Squad

Any city or village which has a live arson squad will have cooperation from the community which a state man cannot possibly secure. You know your communities and your people. Your citizens may be willing to impart confidential information to you which they might withhold from an outside man. Furthermore, they are likely to volunteer important tips to you.

You all remember the frequency with which bank robberies were occurring in all parts of the state just a few years ago. You could scarcely pick up a newspaper without being greeted with flaring headlines of another bank robbery. Finally, working through their bank associations,

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Aviation Brings New Fire Department Problems

A student pilot crashed in the main street of Westbury, L. I., a short distance from the famous Roosevelt Flying Field. The village fire department was called out to clear away the ruins.

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

CLAP hands, clap hands
Till Daddy comes home—

but if Daddy happens to be a member of the fire-fighting force deprived of twentieth century working conditions, there will be hand-clapping for many hours before the family is again united.

The two-platoon system has brought about a more optimistic outlook for members of a fire department. It is possible, under such an arrangement, for a fireman to enjoy domestic happiness and to have some time for recreation or personal matters.

There are two systems by which this plan can operate: either the men can work for twenty-four hours on and then have twenty-four hours off, or there can be a system of day and night shifts whereby those on the day shifts work ten or eleven hours and the men on the night shift, thirteen or fourteen hours.

The problem that is treated in this issue is printed in full in the box on this page. In the box on the following page is the question that will be treated in the next issue. Should you have some comments on the next problem or if you have one that you would like to see treated in this department, write to the "Round Table Editor," FIRE ENGINEERING, 225 W. 34th St., New York, N. Y.

Here Is the Problem

Is your department operated on the two-platoon basis?

What are the lengths of shifts?

Which do you consider the better plan: the twenty-four-hour on and twenty-four-hour off arrangement, or day and night shifts?

The Question

Two very interesting arguments against the twenty-four-hour plan are that the men would be tempted to leave the city without notifying officials, and that it would be necessary to change the bedding in the men's quarters every day. The letters received follow:

Geo. P. Ebner, Chief, Carnegie, Pa.: After ten years of successful working, during which time our department has improved one hundred per cent in fighting fires, I find that the two-platoon system is certainly the ideal one to work under.

For years we had worked like a lot of other firemen, in darkness, or as I would term it, under the "old slave system"—twenty-four hours a day (three hours being allowed for meals). We also had one day off a week. In 1919 we asked for a change in the working conditions and the Councilmen, after having the two-platoon system explained to them, granted our request. It was the greatest improvement made in our department.

With regard to the day on and day off system, I do not quite approve of that idea as it is going back toward the old continuous system. To my mind, twenty-four hours at one time is too long a shift. I think our present system of day and night shifts is by far the better.

A. H. Wygal, Chief, Pulaski, Va.: This department is too small to operate under the two-platoon system. Our present shift is twelve hours. I consider this a good plan because when a man has worked twelve hours he goes home and gets his proper rest. Whereas if he worked for twenty-four hours and then had twenty-four hours off, he would not rest for the entire twenty-four hours, of course. Under such a system men are apt to neglect their rest and be unfit for duty when their leave expires.

John C. Moran, Chief, Hartford, Conn.: Yes, we operate under the two-platoon system, vis., day shift ten hours from 8 a. m. to p. m., and night shift fourteen hours, from 6 p. m. to 8 a. m. The platoons alternate every fourth day.

Officers and men rotate from one platoon to the other every month. Lieutenants and engineers change from one platoon to the other twenty-four hours before the first platoon changes each month. Captains and fireman of each platoon make a similar change twenty-four hours before the fifth change of platoons each month. This rotation of officers and men keeps platoons well balanced at all times.

This plan has been used in Hartford since the two-platoon system was inaugurated over ten years ago and it has been satisfactory to all in the department. In fact, there have been no changes in this plan since it started.

Forest Craig, Chief, Kokomo, Ind.: We are operating on the two-platoon system. The lengths of the shifts are twenty-four hours. I consider the twenty-four hour system by far the best. One good reason for my liking the above system is that I find the men are more satisfied and that is worth a lot in this line of work. In my opinion satisfied workmen is the first step in cooperation of any successful operation.

A. H. Bockelman, Chief, Galveston, Texas: Our shifts consist of ten and fourteen hours in each day. The day shift is ten hours and the night shift fourteen hours. The changes take place at 8 o'clock in the morning and 6 o'clock in the evening. The shifts start Sunday morning and are changed every week. That is, the shift that is on duty Saturday morning remains on duty until Sunday morning, giving each crew every twenty-four hours on and twenty-four hours off.

W. S. Minter, Chief, Long Beach, Cal.: We are working on the two-platoon system, the shifts changing each Monday. The day shift works ten hours, while the night shift works fourteen hours.

With regard to twenty-four hours on and twenty-four hours off, I would say that while it may be practical in some cities, I feel that this would not work satisfactorily here for it is often necessary to call men who are off duty to relieve those who have been working at a fire for a long time. Further, it seems that it would be rather unsatisfactory because of the fact that the bedding would have to be changed each day. Under our present system the bedding is changed once a week as the same man sleeps in the same bed during the week he is working on the night shift.

John L. Kreuzberger, Chief, Saginaw, Mich.: This department is operated on the two-platoon basis. We operate on a straight twenty-four hour plan, one shift being off for an entire day.

I do not favor short shifts, that is, the day and night shift. It appears to me that on a short shift, a man would be more or less inclined to crowd in a lot of activities into his time off. Then upon returning for duty, he would not be as fit as he should. Whereas in a twenty-four hour off shift he can enjoy a regular day of recreation and a good night's rest. This enables him to be fit and alert when he goes on duty again.

John Link, Chief, Blue Island, Ill.: We are using the twenty-four hour shift. I think this is about the best arrangement of all. Each man knows what day he is off and if he wishes to make arrangements for the day with his family, he does not have to worry about being home at 6 o'clock in order to go on duty. The twenty-four hour

shift also makes it possible for men to make arrangements with one of the men of the opposite shift to work a day for him in order that he can go away for a short vacation.

I am for the twenty-four hour shift under all conditions as the men have more time to spend with their families.

Alex W. Dotson, Chief, Eklhart, Ind.: We operate under the two-platoon system. The shifts are twenty-four hours on and twenty-four hours off. We have never had anything but this system and therefore I am not in a position to state which is the better plan. Our present plan was adopted after a vote by the firemen when they were given the opportunity to choose for themselves.

John L. Lucier, Chief, Northampton, Mass.: At present our shifts are from 6 P. M. to 8 A.M., and from 8 A.M. to 6 P.M. I personally would prefer the twenty-four hour shifts as this would bring the change of shift in the morning and has a tendency to make the men more prompt for roll call. After a whole day's recreation and a good night's rest, the men are, in my opinion, in better condition to perform their duties.

R. M. Tappin, Chief, Gardner, Mass.: Our department works under the two-platoon system. The shifts are as follows: Monday, 8 a. m. to 6 p. m.; Tuesday, 8 a. m. to 6 p. m.; Wednesday, 8 a. m. to 8 p. m.; Thursday, 6 p. m.

I prefer the plan our department works under. The twenty-four hour shift allows too much time off at a stretch. Our rule is that no one must leave town without first securing permission. Under this latter system men are apt to take chances and leave the city without permission.

E. F. Reed, Chief, Middletown, Ohio: At the present time we are working under the two-platoon system. This is compusory in the state of Ohio. However, we inaugurated the system in September 1919 before the state law was passed. When the system was first put into effect, we had eleven hours for the day shift and thirteen hours for the night shift. This was in force for about fourteen months and then was changed to twenty-four hour shifts at the request of the men. A change was again made after a short time to the first system but after six weeks the men decided that the twenty-four hour shift was the better of the two and this has been our practice since that time.

To my mind the system that satisfies the men most is the better system. Satisfied men always render better service than dissatisfied men.

C. M. Johnson, Chief, Knoxville, Tenn.: This department is operated on the two-platoon basis. The lengths of the shifts are eleven hours for the day shift and thirteen hours for the night shift. Every eight days the shifts alternate.

I consider the day and night shift the best arrangement. A larger per cent of the men in this department have families and this arrangement permits them to be home with their families half of the time each day.

N. F. Quiet, Chief, Virginia, Minn.: We have three platoons of eight hours each. We did have the two-platoon system of eleven and thirteen hours. We also tried the twenty-four hour shift but did not find this a good plan to help promote efficiency.

E. B. Larkin, Chief, Bradford, Pa.: Our department operates under the two-platoon system, the day shift being ten hours and the night shift fourteen hours. I consider this the better plan as it keeps the men closer to their work. We tried changing every two weeks. That is two weeks working days and two weeks of night work but this had a tendency to create a lack of interest on the part of the men in the work of the department.

J. L. Cain, Chief, Gainesville, Pa.: We are not employing the two-platoon system at present, but I do believe this is a good plan to work under. I personally think the twenty-four hour shift is a good idea.

John Ely, Chief, Champaign, Ill.: The two-platoon system was started here in October 1921. The shifts are twenty-four hours, the change taking place at 7 a. m. each day. I consider this a very satisfactory plan and the men are satisfied.

H. J. Callahan, Chief, Fort Dodge, Texas: I consider the twenty-four hour shift the best plan. We employed the day and night shift system for about four years but changed to our present plan. The men seem more satisfied and the confusion incidental to changing shifts is reduced to half.

James J. Brady, Chief, Amsterdam, N. Y.: We are at present working under the two-platoon system. We are employing the twenty-four hour shift and find that this promotes more efficiency in our department. The men are more contented as it gives them more time with their families.

Here Is the Problem for the Next Issue

Which drills do you consider most essential for the men in the small city department?

Why?

Harry Whiteside, Chief, Beatrice, Neb.: We are employing the day and night shift plan. I believe in a department of our size this is the better idea as the twenty-four hour shift would permit men to leave town. This would be very harmful in the event of a big fire occurring.

F. Cescolini, Chief, Trinidad, Colo.: Yes, we are working under the two-platoon system. The day shift is ten hours and the night shift fourteen hours. The shifts alternate every two weeks. We have never tried any other plan but are contemplating trying the twenty-four hour shift.

Thos. H. Mahoney, Chief, Westfield, Mass.: We are working under the two-platoon system. The shifts are from 8 a. m. to 6 p. m., and 6 p. m. to 8 a. m. Every third day the shift is twenty-four hours for the purpose of changing from day to night shifts. I consider this the better plan to work under.

C. E. Tovee, Chief, Chico, Cal.: I am in favor of the two-platoon system, that is, ten hours for the day shift and fourteen hours for the night shift. At present our men are on duty for twenty-four hours and I think this is too long a stretch.

W. J. Lutz, Chief, Wilmington, Dela.: This department works ten hours for the day shift and fourteen hours for the night shift. The shifts change every third and sixth day. We find this plan works very satisfactorily here.

C. F. Lindsay, Chief, La Grande, Ore.: Our department operates under the two-platoon system. We change shifts every two weeks. The day crew works ten hours and the night crew fourteen hours. We like this system better than the twenty-four hour shift. We have had the two-platoon system for about nine years.

Ray Tiller, Chief, Waterloo, Iowa: We have worked under the two-platoon system since August 1918. Our shifts have always been twenty-four hours on and twenty-four hours off. The men are all very much satisfied with this arrangement.

A. J. Trodick, Chief, Great Falls, Mont.: Yes, our department is operated on the two-platoon basis. The shifts are ten and fourteen hours. This seems to work out very well.

F. M. Russell, Chief, Albuquerque, N. Mex.: This department has been operating under the two-platoon system since 1921. The men work ten hours day and 14 hours nights. The shifts change every two weeks. The officers change shifts on one Sunday and the men the next. On the days the shifts alternate, the night shift works eighteen hours and the day shift twenty hours.

We consider this the better plan as the men cannot leave the city without permission. This can be said from experience as we have tried both plans.

Alvan Barker, Chief, Chester, N. J.: Our department is entirely volunteer and therefore we have twenty-four hour service. Personally I prefer the day and night shifts which are alternated weekly.

H. C. Kimball, Chief, Salem, Mass.: Our department works under the two-platoon system. In 1919 a law was passed putting the day and night shifts into effect. This plan has worked out very well here.

F. E. Robertson, Chief, Jefferson City, Mo.: This department employs the two-platoon system. The length of the shifts are eleven and thirteen hours. I prefer this idea to the twenty-four hour shift.

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WITH THE EDITOR

Wishing You All a Happy New Year!

Old 1929, with its joys and sorrows, its advances and retrogressions, draws rapidly to a close. This is to wish every reader of FIRE ENGINEERING a most happy and prosperous New Year!

May 1930 be a period of unalloyed joy and great progress to you all!

Frequent Changes in Fire Officers

At this time of year the daily papers announce the elections of many new chiefs of fire departments of small cities and towns. Most volunteer fire departments hold elections for officers yearly, and, while a few of them make a practice of reelecting the chief season after season, in the majority of cases a new man takes office at each election.

There can be no doubt that this practice has a weakening effect upon the fire-fighting forces. It could hardly be otherwise. No sooner does an efficient chief begin to take hold of his men and understand their capabilities and range of efficiencies, than he is compelled by the customs of the department to relinquish his post to another, and the process commences all over again. It takes very nearly a year for a chief to become acquainted with the peculiarities of the material at his command, and to plan the utilization of this material to best advantage. Under the circumstances his second year in office should find him in much better position to command his unit than when he first took hold.

For one thing, he has naturally gained more confidence in his year of service as the head of his department. If he is the man for the place, he will also have gained the respect and confidence of his men, which is half the battle in the molding of an efficient fire department. His experience and his studies—for, if he is an ambitious commander, he will have studied hard to perfect himself in his duties—will have rendered him of double value to his community as fire chief, and in every way he will be, at the end of the first year of office, a better equipped individual for the post than when he first assumed it.

How damaging, then, just at this time, to remove this man and substitute one who has had no experience in his job, and who must, of necessity, go through the same process to perfect himself to anything like the degree his predecessor has attained in the office of chief.

By all means rotate the civil officers of the department—the President, Vice-President, Secretary, etc.—for by so doing interest in the affairs of the department are stimulated and the men are given a chance to serve in these capacities from time to time. But when an efficient chief is elected and proves himself an ambitious and painstaking officer, hold on to him and let him progress with his department and assist his men to become a credit to the city and a real force for safety in the community. Permanency, in this respect, spells good service both for himself and his department.

Rendering the Forests Fireproof

Wonderful strides have been made of late years in the science of fireproofing, and the newest idea along this line is the fireproofing of forests. The process, if as successful as it is claimed to be, will render the trees of the forests practically unburnable.

This process has been developed in the laboratory of the College of Forestry at Tharandt, Germany. According to the news despatches, a thin solution "composed of compounds of silicon, fluorine and some other chemicals" is injected into the veins of the tree by means of holes bored in the trunk near the base. The sap is relied upon to carry the liquid up into all parts of the tree, the result being that it is rendered practically fireproof.

If this process can accomplish all that is claimed it opens up wonderful possibilities. Disastrous forest fires, so destructive not only to the woodlands of the country themselves, but also to contiguous property and even to human life, would be practically done away with, according to reports, where the trees had been treated with the new solution. The careless autoist and camper would no longer be the menace to the forests that they are at present. Millions of dollars which now go up in smoke in the disastrous forest fires which yearly destroy so much of the best woodlands of the nation, would be saved. And finally the menace to the lumber supply and the water supply of the country would largely be removed by the saving of the forests from fire. But there should be no reason to get excited about the possibilities until definite evidence of success of the process has been presented.

Menace of Private Cars at Fires

In Baltimore in the latter part of November a blaze occurred in a tire factory which emphasized the hazard of the private car in the matter of its interference with the Fire Department in fighting fires. In this particular case this interference was so pronounced that the department was severely handicapped by hundreds of parked cars and experienced great difficulty in getting near the blaze. So bad has this evil become in Baltimore that the President of the Board of Fire Commissioners of the city suggests an ordinance prohibiting any car from parking nearer than six hundred feet from the fire.

This evil is one which practically every fire chief is compelled to encounter, and which it is recognized that the authorities must take a firm hand to overcome. Unless the motorists are given to understand that the powers that be of a city mean business in regard to the prohibition of following the fire apparatus and parking near fires, there will be plenty of them who will take advantage of any laxity of the authorities in order to get as good a view of the fire as possible, regardless of the inconvenience and danger their acts may produce for the fire department in the performance of its duty.

Not only must ordinances be passed prohibiting such practices on the part of motorists, but the authorities must be prepared to enforce such laws without fear and without favor. The drivers of cars must understand that the law means what it says, and the only way to teach some of them this is to arrest and fine a few of the worst offenders. A short jail sentence in aggravated cases might have an even more salutary effect, and would certainly be justified, when it is considered that not only are the lives of the firemen endangered by these careless motorists, but the property and lives involved in the fire are put in great peril by the delay in arrival of the apparatus, hampered by the parked cars in the vicinity of the fire.

The time has come when drastic and firm action must be taken in the matter of the interference of the private car with the fire department.

COMBINATION FIRE AND POLICE STATION FOR PITTSBURGH, PA.

Third Floor to be Occupied Solely by Police Department — New Station to Replace Quarters of Two Present Companies and Chief

By WILLIAM E. PATTERSON

Bureau of Fire, Pittsburgh, Pa.

PITTSBURGH is constructing a combination police and fire station which will be one of the most modern and largest stations in the city. It was designated under the supervision of Richard L. Niff, city architect. The building will be constructed of reinforced concrete foundation, concrete floors and

Combined Fire and Police Station for Pittsburgh

exterior walls of white Indiana limestone. When completed it will cost $281,761.

The police station occupies the corner of the building with the main entrance on Broad street.

The two departments will be separated from one another by a brick wall on the first and second floors although the third floor has been set aside for the sole use of the police department. The basement is also separated into two distinct sections by a solid concrete wall with no opening of any kind. In this way there is really two separate and distinct buildings.

In the front end of the basement of the fire station is located a toilet room fourteen feet wide and 13 feet 3 inches long containing two shower baths, two wash stands, two toilets and slop sink, while on the outside of the toilet room in the basement proper are two wash trays and china closet.

In the rear of the basement is located the boiler room which is connected with ash and coal storage rooms located under the sidewalk on Kirkwood Street. On one side of the basement is located the hose trough for washing fire hose while other parts of the basement will be occupied by a mess table, benches and lockers for the men as well as a cooking range.

The apparatus room of the fire station is 28 feet 8 inches wide, 80 feet 8 inches long and 15 feet 3 inches high with floor of red tile blocks, 6 x 9 inches and wainscoting five feet high, handsomely finished in colored tiles.

In the rear of the apparatus room is located a lounging room for the men, 22 feet 8 inches wide and 17 feet 9 inches long with rubber tile floor and tile wainscoting. In this room will be located the fire alarm apparatus and telephone.

A hallway leading from the apparatus room and lounging room connects with the garage of the battalion chiefs quarters. This room is 20 feet 8 inches long and 16 feet 9 inches wide, with tile floor and wainscoting.

The dormitory located on the second floor of the building is 28 feet 9 inches wide and 61 feet 7 inches long with a composition floor. In the center of this room are built thirty-four large size lockers in two rows of seventeen each.

In the rear of the dormitory is located the captain's office, 19 feet 4 inches long and 11 feet wide with composition floor and a tile finished toilet room adjoining. In the rear of the dormitory is also the lavatory for the men.

Connecting with the rear of this toilet room by a hallway from the dormitory is the quarters of the battalion chief, consisting of office and bed room, 20 feet 8 inches long and 16 feet 10 inches wide with tile finished toilet room adjoining. A staircase leads from these quarters to the garage, where the chief's automobile is located.

A large combination hose, turret and water tower wagon, a 1,000 gal. American-LaFrance triple combination gasoline pumper and an American-LaFrance, eighty-five foot four wheel tractor drawn aerial truck will be located in these new quarters.

The new structure replaces the present quarters of Engine Company No. 8, Truck Company No. 8 and the battalion chief's quarters of the Fourth Battalion located at Highland Avenue and Broad Street in the heart of the East Liberty business district. It also replaces the present No. 6 Police Station located at Frankstown and Hamilton Avenues.

The section of the new structure to be occupied by the Police Station will contain a large cell room, detention rooms, court rooms, offices for the various police officials, clerks and garage for the Police Patrol. It will be modern and up to date in every respect.

Dominion Chiefs Plan for Convention

The Board of Directors of the Dominion Association of Fire Chiefs are to meet soon at Port Arthur to select a date for the next convention and to make the necessary arrangements for the annual gathering. All members of the association are urged to contribute a list of suggested topics to be discussed at the various sessions.

Since the International Association of Fire Chiefs will meet in Winnipeg, it is probable that the Dominion chiefs will set their date one week in advance of the International Association, so that members will be able to attend both gatherings.

The Dominion Association of Fire Chiefs is affiliated with the I. A. F. C. Chief Harrington, past president, has started a membership drive and hopes to be able to report a one thousand membership list soon. He also hopes to win the I. A. F. C. award for the section showing the largest percentage increase in membership.

Chief W. J. Phillips of Sault Ste. Marie, Ontario, is president and Chief James Armstrong of Kingston, Ontario, is secretary. The exhibits will be in charge of Chief A. S. Kappelle of Stratford, Ont.

Chelsea, Mass., Follows Unique Plan—A rather novel plan of attacking the incendiary problem has been started in Chelsea, Mass. A record is kept of every fire, extending back for five years. When a fire occurs, the Chamber of Commerce writes to the property owner extending sympathy and suggesting more care in the future. In the event of a second fire, in the same property, the state fire marshal is notified and is asked to make a rigid investigation.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Range of Foam Streams

To the Editor:

I would like a little information on the following question:

What is the effective height that a foam stream from a generator can be delivered with 100 lbs., at the generator, and 150 feet of 2½-inch rubber lined hose on the discharge side?

We find in delivering foam into a tank 40 feet high that foam gets very weak, also that the higher we keep our generators the better the foam delivery.

Very truly yours,

H. O.

Answer: The following information, for which the Editor is indebted to the American Fomon Company, probably answers your question.

Some consideration should be given to the temperature of the water in making recommendations as to the length of discharge hose to be used, for we have found that with cooler water it is possible to get excellent foam with 150 feet of 2½-inch discharge hose, while with water at summer temperature, it is much better to use but 100 feet of discharge hose, since by this latter method you get a better grade of foam and the effective range is greater.

We might say that with 100 pounds inlet pressure and 150 feet of discharge hose, we have gotten a range of foam stream of 120 feet, but at the time the foam was measured the temperature of the water was around 50°. We feel that users of generators should recognize that like every other piece of apparatus, their use can be made under conditions which are favorable to operation.

With reference to the vertical height, if 100 pounds inlet pressure is used and 150 feet of discharge hose is employed (in the winter time) your reader should get a vertical range well over 50 feet. In tests we have conducted we have under similar conditions gotten 60 feet vertical range. On the other hand, if 150-foot layout is used in the summer time, the foam will be weak. This is due to the foam forming and expanding more rapidly and being torn to pieces in traveling through the hose at a very high velocity.

The table herewith gives some specific test figures on rates of foam streams, maximum.

Foam Stream Range

Generator inlet pressure per Sq. In.	Length of discharge hose used—Feet.	Size of nozzle used—Ins.	Pressure at base of playpipe lb. per sq. in.	Range of foam stream feet, Max.	Foam quality.
50	50	1¾	6.0	73	Very good
75	50	1¾	9.5	92	Very good
100	50	1¾	12.0	105	Very good
50	100	1¾	5.5	70	Very good
75	100	1¾	9.0	100	Very good
100	100	1¾	12.0	110	Very good
50	150	1¾	5.5	50	Damp
75	150	1¾	7.0	70	Fair
100	150	1¾	11.0	90	Good

Note: The temperature of the water supplied to the generator during the above tests varied from 66° to 71° F.

Securing Hose at Cornice

To the Editor:

Why does a large eastern Department teach the following at their training school?

When stretching hose line over the roof of training school building the fireman on the roof lays on his stomach to tie rolling hitch on hose coupling and another fireman stands on hose while same is being performed.

The officers of the East Orange Fire Department ask why it would not be a better method for the man to make a rolling hitch on hose standing up instead of laying on his stomach and then lower coupling below cornice and have fireman make chimney hitch on the other end.

Thanking you in advance for an early reply, I am

M. A.

Answer: In checking over the course of the fire school to which you refer, we notice no reference made to this particular part of the evolution.

However, each department drillmaster has his own ideas about doing different tasks and usually has some reason for innovations which he employs. In the case you cite, it is possible that the drillmaster considers it easier for a man to reach over the cornice and secure the hose below a coupling than draw the hose coupling up over the cornice and let it down again. This would be the case were not a hose roller used. On the other hand, where a hose roller is employed, it would not be a difficult matter to draw the coupling up over and tie it as you suggest, subsequently letting the line back down until the coupling beneath which the rope is placed rests below the cornice.

You will find quite a wide variety of methods of performing evolutions in fire departments throughout the country.

Gasoline Truck Fires, etc.

To the Editor:

Will you kindly answer the following questions:

1. (a) A gasoline tank truck, containing 1000 gals. of gasoline, tipped over, discharging all its contents on a smooth paved street. The gasoline did not ignite. You are an officer and report the accident on a telephone alarm with Engine Company.

(b) Gasoline did ignite.

What is the best method of handling both of these situations?

2. Should gasoline be permitted to enter a sewer?

3. A four story building used as a department store, employing 200 men and women, has fire escape on the rear, front stairs and an elevator. You are told to install a drill system. How would you do it?

4. In a department store where 100 people are employed, what are the hazards? What auxiliary fire appliances should be installed? What recommendations would you make to safeguard the lives of employees from fire?

Yours truly,

J. F.

Answer 1. (a) The best move in this case would be to permit the gasoline to flow into the sewer. Gases encountered in many sewers are explosive and the addition of gasoline to the flow in the sewers will not increase the danger appreciably.

(b) In this case there will be no practical way of keeping the gasoline from the sewer, and the best thing that can be done is to break up the flow with water streams, but not permit the burning gasoline to be driven toward other vehicles in the street, or over sidewalks where it may enter buildings and thus spread the fire. As long as the gasoline is confined to the gutters and sewer, there should be no great damage done. Of course, it will be necessary to move vehicles from the path of travel of the burning gasoline so that they will not become in-

volved by fire. In order to do this it may be necessary to temporarily check the flow by the use of water streams, if they are already at hand.

The use of foam is of some value in checking the intensity of the fire, but it cannot be depended upon to extinguish the fire as long as there is a considerable velocity of flow of the burning gasoline.

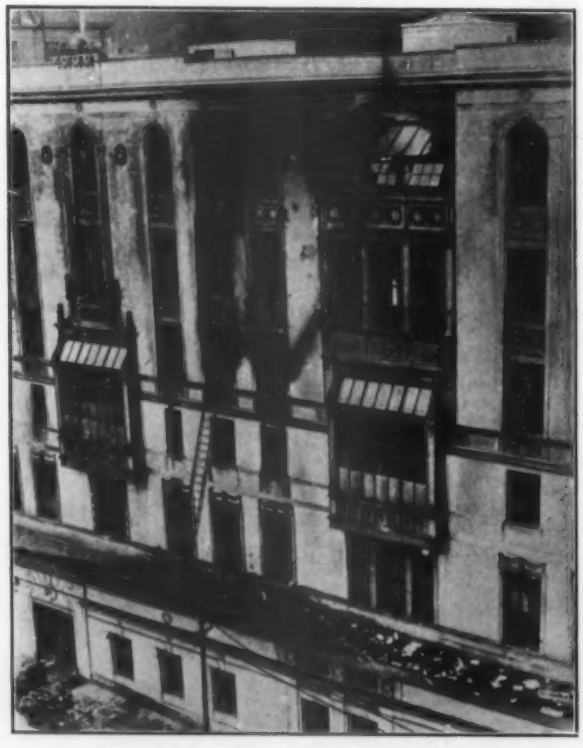
If carbon dioxide extinguishers are present in sufficient number they may be very effectively employed for extinguishing the fire. But it will require quite a number to bring a fire of this size under control.

One or two small streams of water can be very effectively employed at the wrecked tank truck to keep the temperature of the burning materials down while the gasoline flows away.

Answer 2: This question is answered in 1 (a) and 1 (b).

Answer 3: In answering this question more information will be given than is actually required for the answer. The object of this is to provide the reader with sufficient additional data to enable him to plan drill systems for all sizes of department stores.

The primary object of the fire drill for the department store is to afford training and instruction for its employees in handling and control of the public under conditions of panic. This must be accomplished largely by individual instruction and occasionally by execution of drill maneuvers, after the close of business when the public is absent. It is recognized as a serious handicap that these drills must be conducted with no opportunity for testing their working efficiency under conditions approximating actual service, and for this reason they should be given the closest supervision to insure the trained cooperation of every employee. As a large percentage of employees in department stores may consist of women and girls, their active participation in the general fire drill work would not as a rule be desirable. They, however, should be instructed and drilled in the taking of prompt measures for their own safety, which if properly done may by its influence and example materially assist in the handling of the general public.



Patients and Nurses Saved in Hospital Explosion

A disastrous fire wrecked the third floor of the University of California Hospital in San Francisco, Cal., and caused damages estimated at $150,000. The fire broke out with a terrific roar that shook the entire building. At the time of the blaze there were 216 patients in the hospital. Of this number 102 were carried to safety by nurses and internes—the others were in wings not endangered. The fire started in the reading room of the X-ray department and threatened, for a while, to be a repetition of the Cleveland hospital disaster. A young telephone operator was the heroine of the incident. She remained at her post until the various departments in the hospital were notified of the fire.

Organization and Duties as outlined in Freitag's "Fire Prevention and Protection:

For department stores the fire drill organization should be constituted as follows: chief of fire drill, assistant chief of fire drill, floor chiefs, captains, guards and inspectors, in addition to all of the male employees over 18 years of age.

Duties and assignments to be as follows:

Chief of fire drill: He should be some one prominent in the administration of the store, whose position would command respect and insure compliance with all orders and instructions relating to the fire drill.

Duties of chief of fire drill: He will have general charge of all matters pertaining to fire drill instructions, practice, maneuvers, and organization and will designate those persons to fill the positions mentioned above. He will fix the time for holding drills and rigidly enforce measures of discipline for failure on the part of any employee to fully observe all rules and requirements.

Asst. chief of fire drill. For this position either the building superintendent or his assistant should be selected.

Duties of assistant chief of fire drill: He will assist the chief in all matters pertaining to fire drill, performing such other duties as are assigned him by the chief and perform the latter's duties in his absence.

Floor chief: Should be either a head of department or the chief aisle manager.

Duties of floor chief: The floor chief shall have immediate charge of all employees on his floor in all matters pertaining to fire drills. He shall see that employees receive proper instructions, and will be held responsible for the enforcement of all rules relating to fire drill work, and will immediately report to the chief any employee who wilfully neglects their observance. He will be responsible for the maintenance of necessary aisles and passageways leading to all exits and will see that all doors leading thereto are hung open outward.

During drill practice he should have general direction of maneuvers on his floor and will see that each movement is promptly and orderly executed.

Captain: For this position the head of each department or his assistant should be selected; when the head of the department is chosen, the assistant should be fully instructed in all the duties of his superior pertaining to fire drill.

Duties of captain: He should perform the same general duties in his particular department as are prescribed for the floor chief, subject to the latter's supervision and direction.

Guards: For this position strong, alert men should be selected, capable of acting quickly in emergencies.

Duties of guards: One guard to be stationed on each side, at foot of stairway descending from the floor above, when stairways are not continuous, and one guard stationed on each side at head of stairway leading to floor below and one guard on each side of stair landing intermediate between the two floors. Where stairways have more than one bend or landing two additional guards should be assigned to each.

Guards as far as possible will regulate the movement of the lines on the stairways and will be especially watchful of persons stumbling or falling.

In stair towers or on fire escapes where conditions permit, the arrangement will be similar to that outlined for stairways, with the exception that no guards should be stationed on the stairways between the floors unless at landings or on balconies.

Inspectors: One or more uniformed inspectors, preferably with fire department experience, should be employed for day fire patrol duty, who shall make regular rounds of the building and register on an approved watchman's clock. The rounds should cover all fire escapes, stairway exits, doors and windows, where the latter are used as exits to fire escapes or stair towers. He should report immediately to the building superintendent and chief of fire drill any obstructions found on the fire escapes, or any other unusual conditions, and during the winter season should give particular attention to fire escapes exposed to accumulations of ice or snow. Doors or windows used as exits to stairways or fire escapes when found locked should be promptly reported to building superintendent and chief of fire drill. In addition to these duties the inspector shall make a daily test of the signaling system.

Companies: The fire drill organization will include all male employees over 18 years of age, excepting such as may be assigned to fire brigade duty. The employees in each department or fire district will be organized into separate companies under the direction of the department manager or the assistant manager having the title of captain.

Drill Exercise: For fire drill purposes, each floor should be divided into fire districts with as many districts as there are departments, excepting that the total floor area of each district

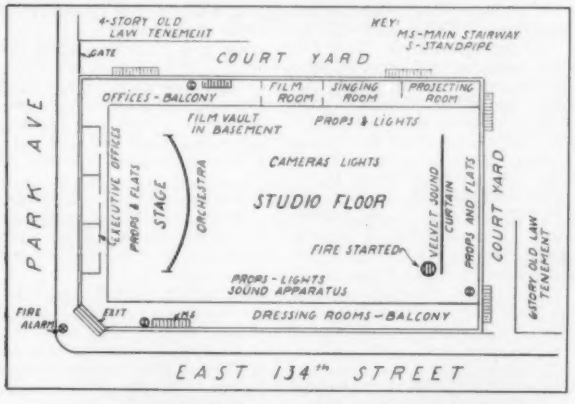
(*Continued on page* 1187)

CRIMINAL VIOLATIONS BLAMED FOR DEATHS IN MOVIE STUDIO

Ten Lives Lost When Fire Started During Filming of Sound Motion Picture in Studio Located in New York City

By WILLIAM JEROME DALY

BUT two hundred feet from the wharf of the fireboat Cornelius W. Lawrence (Engine Co. 87) was located the two and a half story brick building, 85 by 125 feet, at the southwest corner of 134th street and Park avenue, on the edge of Harlem's colored district, used by the Pathe Sound Studios. In this building, on Tuesday, December 10, at 9:38 a. m., ten persons, six men and four young women, lost their lives, and at least twenty persons were burned or otherwise injured. The officials of the motion picture corporation were arrested two days after the fire, charged with



Diagrammatic Sketch of Floor Plan of Studio

manslaughter following an unsuccessful attempt to surreptitiously remove from the ruins, under cover of night, a large amount of nitro-cellulose film.

A description of the premises on the accompanying sketch is a more concise way of presenting the physical picture of the locale before the fire. There were no interior fire alarm and no sprinklers. The public alarm box, of the single-action-door type, was ten feet away from the main entrance of the building.

The main floor, or studio proper, was about five feet above the sidewalk level. The second floor was in reality a mezzanine balcony. The premises were at one time a dance hall and at another time training quarters of Jack Johnson, colored pugilist. The building is about twenty years old. The interior stairways of iron and slate extended from cellar to roof. The outside fire escapes were of the balcony type, five feet wide and extended from roof to ground. The interior throughout was lined with metal sheeting. The dressing room partitions were of composition board. Doors and windows on the studio floor had extra sound-proof padding. The windows of the second floor on the 134th street side were completely covered with a heavy galvanized iron mesh screen to protect the glass from being broken by children playing ball and other games in the street. The studio carried sixteen water pails, six sand pails, eight chemical extinguishers of one quart each, six sulphuric acid and soda extinguishers of three gallons each and twelve metal receptacles for scraps, trimmings, etc. "No Smoking" signs abounded and fire inspectors found no cause for complaint on that account. The building contained a two-inch standpipe system, fed by the city water mains (no tank on roof). There were three outlets with one hundred feet of hose, as indicated on the sketch. The floors were wood, the ceilings metal covered, and the roof of slate and concrete.

The alarms were as follows: First alarm at 9:38; second at 9.41 (transmitted by Battalion Chief Henry Winters of the 12th Battalion); third alarm at 9:46 and fourth alarm at 10.02. Rescue Company No. 1 was specially called at 10:39 o'clock.

The first alarm brought three engine companies, two ladder trucks, two battalion chiefs and a fireboat; second alarm —four engine companies, one ladder truck, Deputy Chief Dennis Curtin of the 5th Division, chief officer in charge of the Marine Division, and Thomas F. Dougherty, Assistant Chief of Department. Four engines and two ladder trucks changed location; third alarm—four engines, a fireboat, one ladder truck, department ambulance with Dr. Archer, one battalion chief, Chief of Department John Kenlon, three engines and two ladder trucks changed location; fourth alarm —five engines, one ladder truck, chief of the 10th battalion, three engines changed location. With this array of fighting machinery came five public ambulances and two squads of the Police Emergency Service. Besides the foregoing, there also attended Fire Commissioner John J. Dorman, Chief Peter C. Spence, in charge of the Bureau of Fire Prevention; Patrick Walsh, Assistant Chief of Department assigned to the Bureau of Fire Prevention; Thomas A. Larkin, Deputy Chief of Fire Prevention; Inspectors of Combustibles Dixon and Callahan and Chief Fire Marshal Thomas P. Brophy with Assistant Fire Marshals Willis, Wilde, Scott and Cassidy.

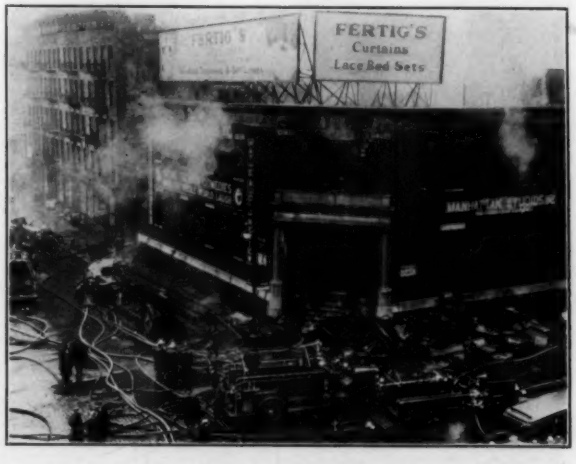
The first fire companies on the scene were Engine Co. 36, located on Park avenue at 127th street, and Hook and Ladder Co. 30, located at Lenox avenue and 135th street. Lieut. Daniel Shea of the engine and Lieut. Thomas McCoy of the ladder company were met in front of the building by a frenzied, hysterical and uncontrollable mass of screaming men and women. The building was then an inferno, and this supports the fire department's contention that the alarm was delayed by the occupants of the premises.

It was admitted, quite freely, and with an air of "accomplishment" by some of the workmen whom the writer interviewed while the fire was still uncontrolled that employees attempted to handle the situation themselves with the house appliances. "Why not? What were they there for?" asked one man.

"But did you, at the same time, despatch somebody to snap the handle on the alarm box right outside of your door?" rejoined the interrogator. There was no answer.

Ladder No. 14 took a few of the office force of the studios off the second floor on the Park avenue side, while members of Hook and Ladder 30 rescued a young woman from the second floor on the 134th street side. The fire in the main seemed to be to the west. Flames belched forth principally from the west and north windows. The fire escapes on the rear or west ends of the buildings were useless. Flames had complete control of those avenues of escape and the iron fire escapes were sizzling. The stationary fireman crawled out through the coal chute to the sidewalk.

At the foot of the stairway nearest to the main entrance on the ground floor the crew of Engine 36 found one of the girls in the picture cast. She was badly burned, and heroic efforts to save her were futile. She died an hour



The Two-Story Brick Building Used for a Motion Picture Studio in the Harlem Section

later in Harlem Hospital. Within a few minutes of arrival, firemen fighting their way through all parts of the structure found bodies until the toll had reached ten. The fire was under control in a half hour, although the local engine company was on duty eleven hours, principally for overhauling.

The six men who perished were employees of the house, while the four girls were professional performers engaged in the making of a sound motion picture entitled "Black and White Review," although there were no colored persons

present. There was a total of about 125 persons in the building, of which seventy-five were women members of the cast and about twenty men were the musicians in the show —the scene being the stage of a night club.

Some of the men who unfortunately perished carried with them the best information as to the origin of the fire. They were truly martyrs to a lost cause, since their efforts at extinguishment were in vain. Among the survivors, however, there is discrepancy and disagreement about the physical conditions and circumstances at the point of origin. The electricians on "the set" have testified that there were no lights in use, that a test only was the extent of the "juice" used that morning. Others, principally actors in the cast, described the origin of the fire as behind a black velvet sound curtain at a point about two or three feet from the floor. At least three of these performers have testified before Fire Marshal Brophy that the velvet curtain seemed to be draped over the top of a flood light, although the curtain proper was suspended from above. All of the actors who testified are in agreement that the light, when they observed it, was lit and that the first sign of fire was a smouldering in the curtain at that point. The man accredited with having made the first discovery of the fire died at his post. He was

This Was the Exit Which Blocked the Dash to Safety

Some of the participants in the picture, "Black and White Review," jumped from second floor windows. Delay in sending in the fire alarm is blamed for the large death list.

an electrician. It is admitted on all sides that efforts were made to pull the curtain down, but it was fastened too securely for that. Moreover, two weeks prior, a similar fire in another curtain had been extinguished by hand when the curtain was torn down, the witnesses testified.

At all events, the curtain proved to be the instrument that conveyed the flames to nearly props resting against the west wall. These props were principally flats, painted and decorated—the ideal fuel for such a blaze. Quicker than it can be told here, the flames seemed to have taken possession of the rear or west end of the studio, so much in fact that channels of escape by rear wall fire escapes were cut off.

During this time, most of the young women members of the cast were in their dressing rooms "making up" for the picture. Those who were trapped were evidently tardy in making an exit, or were not appropriately attired for a quick get-away, or as is so often the case in show business, they just ignored the calls "get out," thinking, perhaps, that it was just the usual director or manager hustling them to "the set." In an earlier part of this article it was pointed out that there was no interior fire alarm signal.

Mute proof of the efforts made to handle the fire was contained in the portable extinguishers and the tiny standpipe lines found in the debris. The standpipe hose was still pouring water, indicating that it had to be abandoned speedily while still in futile use. It is also conjectured that the flames in their incipient stage were fanned by draughts from open doors through which those with early knowledge of a fire were making their hasty exit while others were still in their dingy dressing rooms oblivious of what was going on below, or, as previously stated, mistakingly ignoring what profoundly proved to be their last "curtain call."

Before the ruins had cooled separate inquiries had been started by the Fire Marshal, the Fire Prevention Bureau, the Police Department and the District Attorney of New York County. Perfunctory progress was made and nothing startling elicited until about midnight on Thursday—two and a half days after the fire—when some unidentified men while removing records, files, etc., attempted to carry numerous containers of film from the place. A policeman on guard and a member of the Fire Patrol on watch there stopped it. The attempted secret removal of this film was communicated to Police Commissioner Grover A. Whalen, who hurried to the spot, ordered the ruins searched, seized roll after roll of film and by dawn had two officers of the corporation behind the bars.

The foregoing detail is important from a fire engineering standpoint because of the following state of facts:

Under the law in New York City, any structure used for the manufacture, storage or use of any description involving more than five thousand feet of nitro-cellulose film must have sprinklers supplied by two independent sources of water and a tank on the roof. Such equipment as this was lacking in the premises for the reason that in the year 1919 the then lessee appealed to the Board of Standards and Appeals of the City of New York for relief from an order of the then fire commissioner requiring such fire protective equipment. The appeal was granted with the stipulation that a standpipe with three outlets be installed and further that at no time shall there be more than five thousand feet of film on the premises for use in the making of pictures.

Last May the present occupant applied to the Fire Department for permission to carry a minimum of 120 reels of film. This application was denied in writing and with the admonition that more than five thousand feet cannot be maintained on the premises until the automatic sprinklers have been installed as required by law and also as set forth in the conditional appeal granted in 1919.

Periodic inspections made subsequent to May, 1929, by the Inspector for the Bureau of Fire Prevention of the New York Fire Department failed to disclose any excessive stock of film, if indeed any were there. Thus far there is no proof of it. Only the moral impression gained from the disclosures anent the attempted secret removal of film two nights after the fire. At this writing the total amount of film taken out of the studio ruins by the police is 243,207 feet in 372 containers. The latest inspection made of the studios by the fire prevention inspector was November 7, 1929.

It is not the contention of anybody concerned with the legal or the moral side of the fire that film had anything to do with the fire, its origin or its extraordinary speed in spreading the fire.

But, the presence of film in such quantity, and the surreptitious attempt to get it out of the reach of the authorities, has caused the worst hullabaloo that has visited the Bureau of Fire Prevention since the fatal fire in Maiden Lane in 1920. It is felt by all right-thinking authorities in New York that no motion picture plant of any sizeable production can operate with a maximum of five thousand feet of film on hand, and that therefore in this instance sprinklers should have been part of the equipment of the plant. It is generally admitted that if the plant had been so equipped, the sprinklers would at least have sufficiently retarded the spread of the flames to enable everybody to get out unscathed; if indeed they might not have quenched the fire entirely in its incipiency. History of fires in buildings with sprinklers in New York clearly proves preponderance on the side of one hundred per cent performance, excepting where the sprinkler system was ruptured, maliciously shut off, tank frozen or other abnormalities.

Mayor Walker is outspoken in his determination to get to the very bottom of the facts and circumstances surrounding the entire situation. Much has been published about fire protection engineers and corporations engaged in professional advisory capacities to persons and firms who may be in violation of the fire prevention laws. These activities have been going on since the Triangle Shirt Waist factory fire eighteen years ago, for it was that fire that brought about the present fire prevention laws.

Under existing regulations in New York City, notice of appeal to the Board of Standards and Appeals for relief from an order of the Fire Department, the Tenement House Department and the Building Department has the effect of

stopping enforcement of such an order. In the present instance, no such notice of appeal for relief, in order to carry more than five thousand feet of film, was filled with the Board of Appeals, nor was it filed with the Fire Prevention Bureau. Three or four days after the fatal fire, however, the first public knowledge of such notice of appeal was disclosed in statements to the effect that a well-known national fire protection corporation had notified its client, the Pathe Sound Studios, that it intended to appeal.

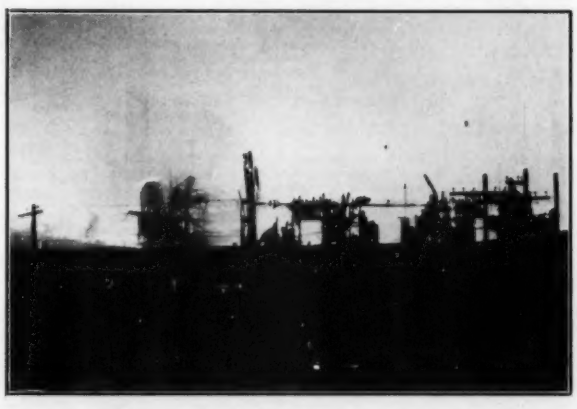
It is contended by the Fire Prevention Inspector that this notice was "flashed" on him when he visited the premises on his routine inspection. In the interim, the hazard continued, even though the film had nothing to do with the fatal fire that followed; neither did the sprinklers—they weren't there.

FIVE SIDE WHEEL STEAMERS DESTROYED AT WHARF BLAZE

Nantasket Excursion Boats That Were Tied for Winter All Destroyed—Several Small Blazes Started by Flying Sparks

By HARRY BELKNAP

BEFORE a fire that broke out on the wharf of the Nantasket Beach Steamboat Company, Hull, Mass., could be brought under control, five side-wheel steamers were destroyed together with the dock and coal pockets, and



Night Views of Wharf, Showing Shed and Burning Steamboats in the Background

the sparks started a number of other fires that were extinguished before any serious damage resulted.

The blaze started in the office on the wharf. It spread to the boats, "Nantasket," "Betty Alden," "Old Colony," "Rose Standish" and "Mary Chilton," that were tied up for the winter. The steamer "Mayflower" was damaged. The state bathing pavilion on the ocean front was leveled and the roofs were burned off two cottages on Green Hill about a mile from the wharf. The total damage has been estimated at $2,000,000.

Chief Henry J. Stevens, of the Hull Fire Department, was in charge. For a time it seemed as if the main street stores and Paragon Park, a nearby amusement resort, would be wiped out, as a high north-westerly wind sent sparks flying and fanned the flames to fury.

Outside aid was called and apparatus responded from Hingham, Cohasset, Quincy, Braintree, Weymouth, Norwell and Scituate. Chief Daniel F. Sennott, of Boston, sent a fireboat, Engine 31, to the scene. The tug "Mars," under command of Capt. A. C. Simpson, attempted to tow out some of the burning ships, but ran aground at the edge of the channel.

Apparatus from Weymouth, Hingham and Cohasset worked at the fire in the state bathing pavilion and saved the women's section. The Cohasset firemen also extinguished several small roof fires in the Green Hill section.

Hose lines were run out on the dock from motor pumping engines at hydrants on the main street. Some of these lines were over one thousand feet in length. Several pumpers drafted salt water from the harbor.

While engaged in fighting the fire in the state bath house William Hatch, of the Hingham Fire Department, and Daniel McLeod, of the Hull Fire Department, were injured, the former being seriously hurt by a fall from the roof. Sergt. Thomas Kelleher, of the Metropolitan District Police, sustained a broken arm and a number of firemen suffered minor injuries. Many of the call members of the Hull Fire Department were at a football game in Scituate when the fire broke out.

Chief Albert T. Brown came from Hingham with Engines 1 and 2 and Ladder 1; Chief Frank Martin responded from Cohasset with two pumpers and a ladder truck; Chief Fred S. Tenney and Deputy Chief Henry T. Sears came with Engine 1 from Braintree; Deputy Chief John O'Neill came with apparatus from Quincy; Chief J. Ralph Bacon was at the scene with apparatus from Weymouth, and Chief Archie Torrey responded with motor equipment from Scituate. Coast guardsmen from the Stony Beach Station assisted the firemen.

Flying embers ignited the steeple of the Church of St. Mary of Assumption but this blaze and several other small fires caused by sparks were extinguished before serious damage resulted.

The flames from the burning steamboats lit up the sky and could be seen for miles, attracting a large number of motorists to the scene.

There have been several other large fires in the Nantasket section of Hull in recent years. On January 7, 1927, the Atlantic House and two cottages were destroyed with a loss of $235,000. On a bitterly cold night in March of 1923, with a high wind, damage of $350,000 was caused by a fire which swept Paragon Park and burned many homes over a wide area. In 1916 there was another large fire in the amusement park.

Four-Alarm Fire Destroys Church

Four alarms were sounded on November 30 for a fire which destroyed the Eliot Congregational Church at Dale Street and Walnut Avenue, in the Roxbury district of Boston, Mass.

Chief Daniel F. Sennott and Assistant Chief Henry A. Fox directed department operations. They were assisted by Deputy Chief Walter McLean and several district chiefs.

The flames had obtained great headway before the fire was discovered and the first alarm sounded from Box 2154 at 1:25 a. m. There was a second alarm at 1:30, third at 1:35 and fourth at 2:10.

The church was of stone with a slate roof. The parish house and chapel adjoining were saved after a hard fight by firemen who worked from ladders and from a fire escape on the parish house. Powerful streams were directed

Fighting the Fire That Broke Out in the Eliot Congregational Church at Roxbury, Mass.

through windows and doors at close range and wagon guns were operated effectively from the street. Nearby frame dwellings were wet down to minimize danger from flying embers.

The weather was bitterly cold with a high wind prevailing. Damage was confined to the church proper and was estimated at $150,000.

Fire Commissioner Eugene C. Hultman praised the mem-

bers of the department in the following words in a general order:

"The work performed at the church fire at Walnut Avenue and Dale Street, Box 2154, was most commendable. While the department was busily engaged on this 4-alarm fire its services were required at a 2-alarm fire at Box 221. The calling of the department to extinguish a fire in the south end which required two alarms during the progress of a four-alarm fire in Roxbury exemplified in a very tangible manner the functioning of the new running card. Nineteen engine companies, five ladder companies, a rescue compay, the deputy chief, and three district chiefs responded to four alarms from Box 2154. When Box 221 was received Engines 22 and 13, Ladder 13, Rescue Co. 1, and the district chief of district 8 were in quarters. The officers and men of the foregoing companies were assigned to Box 221 on a first alarm and were thoroughly familiar with the district they were called upon to protect. Undoubtedly the loss of life would have been far greater were it not for the fact that the new assignment card left in each district companies ready to respond on their regular first alarm assignments. Because of the exceptional demand on the department on this occasion the Commissioner feels that it should be called to the attention of the members as an example of the operation of the new running card."

The fire at Box 221 was in a lodging house in which two women lost their lives and several were injured, one fatally. At this fire Capt. Florence J. Sullivan, of Engine Co. 32, lost his life.

HARRY BELKNAP.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending December 13

BURLINGTON, IA.—Grace Methodist Church destroyed..... 35
KEWANEE, ILL.—Business building of Robert Bennison..... 80
DES MOINES, IA.—Office and whse. of N. S. Sielsen Lumber Co. 40
RICHLAND, PA.—Feed and grain mill of John Zug..... 25
MONROE, MICH.—Stock of Consolidated Paper Co..... 25
WESTHAMPTON, L. I., N. Y.—Country home of O. C. Heinze.... 400
RUGBY, N. D.—Mill of Rugby Milling Co..... 65
CHATHAM, ONT.—Two entire business blocks destroyed..... 600
MIDDLETON, TENN.—Three business buildings 25
MEDFORD, MINN.—Post office and adjacent property..... 30
ATHOL, MASS.—Athol Theatre building..... 100
ELIZABETH, N. J.—Residential and business property..... 500
WINDSLOW, ARK.—Public school building destroyed..... 30
EAST DEDHAM, MASS.—Hartness Square business property..... 25
GLYNDON, MD.—Methodist Church damaged 65
EASTFORD, CONN.—Factory of J. M. Tatem Handle Co..... 30
HARTFORD, CONN.—Nathan Hale Apartments damaged..... 30
CARLISLE, PA.—Kronenberg building destroyed 300

Philadelphia Has a Four-Alarm Fire

A fire that started in the conveyor connected with a storage tank of the Barrett Manufacturing Company in Philadelphia, Pa., developed into a four-alarm fire. The intense black smoke attracted a large number of spectators to the scene.

SAN FRANCISCO, CAL.—Mansion of G. A. Pope destroyed..... 400
LEXINGTON, KY.—Farmers' Union stockyards 25
ATLANTA, GA.—Warren Memorial Church damaged..... 65
WAUKEGAN, ILL.—Business property at 12 N. Genesee St..... 25
EXETER, CAL.—Hunt Bros. cannery destroyed..... 50
NEW ORLEANS, LA.—St. Charles Ave., property of W. C. Keenan 25
SACRAMENTO, CAL.—Building of Pacific Fur & Wool Co..... 25
ISLE OF SHOALS, N. H.—Gloucester fishing boat..... 25
NEPONSET, MASS.—Shop at Lawley & Sons Corp. plant..... 80
BIGGS, CAL.—Biggs Grammar School destroyed..... 25
SYRACUSE, N. Y.—Alex. H. Davis mansion destroyed..... 65
DALLAS, TEX.—Hanger and planes at Love Field..... 165
HARRISBURG, PA.—Building of Trostle Motor Sales Co..... 150
GRAND RAPIDS, MICH.—Store of Galewood Outfitting Co..... 65
MONTOURSVILLE, PA.—Masonic Temple business block..... 80
TAMPA, FLA.—Dwelling of R. N. Burns destroyed..... 25
PARKERSBURG, W. VA.—Camden Theatre block..... 500
FOSTORIA, OHIO—Franklin Department store, adjacent property.. 125
TOLEDO, OHIO—Royal Theatre damaged 25
S. MILWAUKEE, WISC.—Vocational school building destroyed..... 30
MILLVILLE, N. J.—Home of Wm. E. Clark, E. Main St..... 30
GADSDEN, ALA.—Martha Washington Apartments destroyed..... 65

Week Ending December 20

SPRINGFIELD, MASS.—Markman Furniture Co. store..... 25
DARIEN, CONN.—Colonial mansion of Alex. Reid..... 40
WILLISTON, N. DAK.—Odd Fellows block damaged..... 65
PHILADELPHIA, PA.—Barrett Co. plant damaged..... 400
PROVIDENCE, R. I.—Browning-King Clothing Co. building..... 100
DETROIT, MICH.—Plant of Iodent Chemical Co..... 150
TAMPA, FLA.—Hanger and planes, Municipal Air Port..... 80
SUDBURY, ONT.—Property of International Nickel Co..... 150
NEWPORT, R. I.—Bellevue Avenue Men's Club..... 25
SUDBURY, ONT.—Gimpoli block, Cedar St..... 25
WEST HAVEN, CONN.—Business property of S. J. Alderman..... 80
MINNEAPOLIS, MINN.—Elevator of Sterling Grain Co..... 400
WILLOW SPRINGS, ILL.—Roadhouse owned by John Samec..... 40
WILDWOOD, N. J.—Auditorium building of St. Ann's R. C. Church 65
EVERETT, MASS.—Mill of C. H. Spalding & Co..... 25
NEW BERN, N. C.—J. J. Bellemah store destroyed..... 25
CHICAGO, ILL.—Store of General Furniture Co..... 25
LEWISTON, ME.—Singer block destroyed..... 100
FOX CHASE, PA.—Main building of Lawnhurst Sanatorium..... 80
SAULT STE. MARIE, CAN.—Several business establishments..... 40
BUFFALO, N. Y.—Shops of International Railway Co..... 300
PITTSBURGH, PA.—Bldg. of Kolb Bros. and Hulsman Co..... 30
SASKATOON, SASK.—Whse. owned by W. G. Vogan, Ltd..... 35
WILMETTE, ILL.—Presbyterian Church destroyed..... 45
SAN AUGUSTINE, TEX.—High school building destroyed..... 50
CLARKVILLE, ARK.—Science bldg. Ozarks College..... 125
CHICAGO, ILL.—Rainbo Gardens, Lawrence Ave.-Clark St..... 65
SANTAQUIN, UTAH—Santaquin flour mills destroyed..... 25
NEW BRIGHTON, PA.—Empire Theatre building damaged..... 35
BAYONNE, N. J.—Broadway residential property..... 60
PHILADELPHIA, PA.—Plant of Chas. F. Simons Co..... 80
THOMPSONVILLE, CONN.—O'Hear Building, adj. property..... 25
BALTIMORE, MD.—Paper plant of Thos. H. O'Connor..... 175

N. Y. Fire College Ends Fall Session

A luncheon on December 18, at which Lieut. Thomas McCoy, president of the Fire Lieutenants Association, presided, marked the close of the Fall class of the New York Fire College. The term started October 14 and consisted of nineteen sessions. Twenty-five junior lieutenants attended the past term.

Among the speakers at the luncheon were Assistant Chief of Department Thomas F. Doughetry, dean of the faculty; Deputy Chief John J. McElligott, in charge of the Marine Division; Deputy Chief Richard J. Marshall, in charge of apparatus and repairs; Deputy Chiefs John J. T. Waldron and Henry B. Helm, lecturers on general fire fighting; Dr. Harry M. Archer and Combustible Inspector Leo Liebermann, who lectures on the chemistry of fires.

Assistant Chief Dougherty admonished the young lieutenants— "to keep up to snuff. Things are changing. You've got many years before you and you should study the problems of your job and get confidence in yourselves."

Dr. Archer said that the day was not far distant when there would be a chair at some local university on the subject of fire fighting; that fire extinguishment and fire prevention are now regarded as scientific subjects and would before long be recognized as a real profession.

It was announced at the luncheon that Fire Commissioner John J. Dorman intends to ask the Board of Estimate for $3,500,000 for a new site and a group of new buildings for repair shops, drill tower, training school, test track, pumping test pit, fire college and store house. Just now these several agencies are scattered over different parts of the city.

WM. JEROME DALY.

Building Department Urges New Laws—The building department of Portland, Me., has been carrying on a newspaper campaign to secure public interest and support for the building code and zoning law. A paid advertisement was run weekly in the newspaper for twenty-six weeks and several illustrated articles were displayed on the building page of the paper.

Chief Wade U. Webster Dead

Wade U. Webster, Chief of the Fire Department at Willimantic, Conn., died at his home after a few days illness. He had been connected with the fire department for many years.

The Late Chief W. U. Webster

He joined the fire force, May, 1897, and was made assistant foreman in 1903. He served as foreman from 1906-7 and as chief in 1908. With a change in city government, he rejoined the Alert Hose Company and remained with them until 1917, when the department was placed on a paid basis.

He was appointed call chief in 1917 and he served in that office until 1923. Chief Wade resigned in 1923 to take up other business. However, in February, 1929, he was again appointed head of the department to fill the vacancy caused by the death of Chief Henry J. Kelly.

It was largely through the efforts of Chief Webster that the two-platoon system was established in Willimantic. He was a past president of the Connecticut State Firemen's Association. Besides his widow, he leaves a son, an aged mother and two sisters.

Chiefs Enjoy Christmas Party

Members of the Fire Chiefs' Club of Massachusetts made merry at a luncheon and Christmas party held in the Parker House, Boston, on December 18.

Chief Selden R. Allen, of Brookline, presided. Seated at the head table were Supt. William Guertin, of the Insurance Patrol, Worcester; Chief Mellen Joy, Saugus; Chief Alfred L. Mead, Quincy; John Scully, of the American Fire Equipment Company, Boston; ex-Chief Howard A. Fiske, Framingham; Chief Allen, Brookline; ex-Chief F. Burt Jaquith, Randolph; Charles "Sandy" Chapman, of the Gamewell Company; Supt. Edward E. Williamson, Boston Fire Department Maintenance Division; and George F. Cobb, of Brookline, Traffic Manager.

Chief David A. DeCourcey, of Winchester, and Chief Arthur Montmeny, of Chicopee, were appointed "sheriffs of the day," and with Chief Allen presiding as judge, mock trials were held. The culprits were Chief "Jimmie" Casey, of Cambridge, and Chief "Dan" Sennott, of Boston.

A live turkey which strutted about and finally flew on top of the table was an unusual feature of the party. This live bird, and a half dozen dressed turkeys, were distributed as Christmas presents to the holders of cards drawn from a hat.

Upon motion of Chief George L. Johnson, of Waltham, the club voted to commend the services rendered by Commissioner of Conservation Bazeley.

There were ninety-five persons present, including active and associate members. The live turkey was won by John H. Weatherbee, of Stowe, ex-chief of Hyde Park. This bird was donated by George Ernest Robinson, specialist in fire department architecture; and the other fowls were given by representatives of fire equipment manufacturers and dealers.

Announcement was made of the election of the following as active members of the club: Chief D. W. Flynn, of Great Barrington; Chief William C. Blois, of Westboro; Chief J. Ralph Bacon, of Weymouth; and Chief Richard F. Barton of Plainville.

HARRY BELKNAP.

Camden County Plans Fire School—A training school for volunteer firemen is being planned to serve Camden County, N. J. Plans are being considered to avoid confusion between the telephone and fire companies.

H. Brown Representing Pioneer Rubber Mills—Harvey Brown has been appointed representative of the fire hose department of the Pioneer Rubber Mills, 353 Sacramento street, San Francisco. He will have charge of hose sales in California, north of Bakersfield. Mr. Brown is a veteran hose salesman and is known to a large number of fire chiefs.

FIRE DANGERS RESULTING FROM STORING AND HANDLING FILM

Nitrocellulose Films Still Continue to Form Serious Hazard to Life and Property—Facts Issued by U. S. Bureau of Mines.

NOTWITHSTANDING the severe lesson taught by the Cleveland Clinic disaster of May 15, 1929, and the widespread publicity then given to the hazard involved in the handling and storage of nitrocellulose films, serious accidents attributable to such films continue to occur, states Dr. Charles E. Munroe, Chief Explosives Chemist of the United States Bureau of Mines, Department of Commerce. Only recently accidents of this nature occurred at Los Angeles, San Francisco, Salt Lake City, Newark, N. J., and at Opelousas, La., resulting in many casualities, some of which were fatal, and in heavy property damage. Stored nitrocellulose films, such as are used in the production of moving pictures and X-ray photographs, present the menace of fire, explosion, and wholesale gaseous poisoning, Dr. Munroe warns. For these reasons, such films should be stored only in accordance with the best practice.

Flameless combustion of nitrocellulose films can be started by exposure to temperatures as low as 150°C. The danger of spontaneous decomposition of films eventually resulting in spontaneous combustion, and their capacity to acquire static charges through friction, are also referred to by Dr. Munroe.

The first accident of any magnitude caused by nitrocellulose films, appears to be that which occurred in the Ferguson Building, Pittsburgh, Pa., on September 27, 1909, whereby a modern office building was seriously damaged and 50 persons were injured. This event was thoroughly inquired into by explosives experts from the Pittsburgh Testing Station of the Bureau of Mines, who also made an exhaustive experimental study of moving picture films such as were involved in the disaster.

That moving picture films were, like thin strips or shavings of other combustible substances, easily ignited, quite inflammable, and highly combustible was quite generally known, and because of their being composed of cellulose nitrates, many recognized the possibility of explosions resident in them. A characteristic of the films that was then little known, but which was emphasized in the Bureau of Mines report, was that nitrocellulose films could undergo flameless combustion, a process of decomposition which may be started at a relatively low temperature and which proceeds autocatalytically after it is once initiated. As a fact, film was carefully observed in the dark while this flameless combustion was actively going on in the film and no flame, nor even a glow of light, was seen, though heat was set free. This process of decomposition also gives rise to the evolution of very considerable quantities of nitrous fumes and of carbon monoxide, and each of these substances is extremely poisonous, and, as mixed, very dangerous to encounter. Furthermore, since carbon monoxide is quite combustible, and the nitrous fumes are supporters of combustion, violently explosive gaseous mixtures may be formed from them alone, or in admixture with air.

As flameless combustion of nitrocellulose films can be started by exposure to temperatures as low as 150°C., brief contact with the bulb of a glowing incandescent electric lamp, a heated steam coil, the glowing end of a cigarette, a hot wire, a flame or similar sources of heat, will almost immediately start this reaction, and it may even be started, through more prolonged contact, with bodies heated to but 100°C., the temperature of boiling water. When flameless combustion is initiated in a mass of films, it may, according to circumstances, continue throughout the mass, or it may be transformed to active combustion which is accompanied by the production of flame and the evolution of light as well as heat. This transformation is the more likely to occur if the mass of films is insulated so that the heat generated in flameless combustion accumulates in the mass thus attaining a higher temperature.

The chemical reactions which take place in nitrocellulose differ with its mode of combustion, flameless, active or explosive. Fortunately, in the last two methods of combustion the reactions are much more complete than in flameless combustion. They do not yield nitrous fumes and but little carbon monoxide.

Little or no attention has been given to the tendency of nitrocellulose as used in films to undergo spontaneous decomposition which might eventually result in spontaneous combustion, and no instance of such an occurrence has been brought to notice in this connection. But such occurrences have been very frequent with such nitrocelluloses as are used in smokeless powder and also as are sent into the market in the form of collodion cotton for use in the manufacture of collodion as used in photography and in pharmacy.

(*Continued on page* 1188)

The Round Table

(*Continued from page* 1176)

Lawrence E. Reif, Chief, New Haven, Conn.: We operate under the two-platoon system. The shifts are from 8 A. M. to 6 P. M., and from 6 P. M. to 8 A. M. The men seem perfectly satisfied with these working hours.

W. P. Weeks, Chief, Battle Creek, Mich.: We employ the two-platoon system. The shifts are twenty-four hours on and twenty-four hours off, the change taking place at 7 A.M. Of the two systems, I think this is the better.

W. C. Thrun, Chief, Batavia, Ill.: Our department is volunteer with the exception of the chief who is paid a salary, has one day off a week and ten days vacation with pay. As to which system I consider the best, I would say the day and night shifts alternating about every two weeks.

Jos. L. Murphy, Chief, Kingston, N. Y.: We operate under the two-platoon system. The shifts are ten and fourteen hours, alternating every third day.

Personally, I consider the twenty-four hour shift the better plan.

C. S. Collins, Chief, Niles, Mich.: This department is operated under the two-platoon system. We employ the twenty-four hour shift and I consider this the better plan for this department.

J. M. Gory, Chief, Greenwood, Miss.: While we do not operate under the two-platoon system, I am very much in favor of it. Of the two plans, I prefer the day and night shifts.

J. J. Kuplic, Chief, Manitowoc, Wis.: We use the two-platoon system. The twenty-four hour shift is the one in practice here, and I think this is the better plan of the two.

E. E. Chase, Chief, Lynn, Mass.: Our department is operated under the two-platoon system. The shifts are from 8 a. m. to 6 p. m. and from 6 p. m. to 8 a. m. Every third day the shifts alternate. I personally prefer the twenty-four hour on and twenty-four hour off shift.

Geo. Wallace, Chief, Cleveland, Ohio: The two-platoon system we employ is the twenty-four hour on and twenty-four off shifts. I consider this the better plan from the standpoint of the department and also the men.

A. B. Horney, Chief, High Point, N. C.: This department is not operated on the two-platoon basis.

E. Seymour, Chief, Plattsburgh, N. Y.: This city has not as yet adopted the two-platoon system.

A. Dale Ford, Chief, Princeton, Ind.: Our department is not operated on the two-platoon basis. We work three days and three nights and then have twenty-four hours off which, to my mind, is not satisfactory.

Julius Marker, Chief, Idaho Falls, Idaho: The two-platoon system we operate under, is the day and night shifts of ten and fourteen hours. The shifts change every week.

D. C. Fahy, Chief, Penns Grove, N. J.: We have two men on twelve-hour shifts. This works out very well here.

B. F. Shely, Chief, Lexington, Ky.: We employ the two-platoon system. Our shifts are twelve hours on and twelve hours off. However, I consider the twenty-four hour shift the better plan.

S. T. Lowry, Chief, Decatur, Ill.: We operate on the two-platoon basis. I consider the twenty-four hour shifts better than the day and night shifts.

J. H. Monroe, Chief, Savannah, Ga.: We employ the day and night shifts here. I cannot say which is the better arrangement as we have never tried the twenty-four-hour plan.

Walter H. Zibble, Chief, Wilmette, Ill.: The twenty-four-hour on and twenty-four-hour off is the plan used in this department and I consider it a better plan than the day and night shifts.

C. H. French, Chief, Manchester, N. H.: We do not use the two-platoon system here. We have one day off in four.

T. W. Alleman, Chief, Altoona, Pa.: Our shifts are ten and fourteen hours. The shifts alternate every three days. We find this the better plan.

Archibald Howard, Chief, Ogdensburg, N. Y.: We have employed the twenty-four-hour shift for the past six years and have found this works out very well.

John A. Grogg, Chief, Tiffin, Ohio: I think the twenty-four-hour shift is the better plan as the men seem to be more satisfied in every way.

Wm. F. Reinisch, Chief, Lawrence, Kans.: This department is working under the two-platoon system. The day shift works eleven hours and the night shift thirteen hours. I personally do not favor the twenty-four-hour shift.

J. M. Slaughter, Chief, Paducah, Ky.: This department is operated under the twenty-four-hour on and twelve-hour off plan. In my opinion, the twenty-four on and twenty-four-hour off plan is the better one.

Ed. P. Taylor, Chief, Cheyenne, Wyo.: This department is operated on the two-platoon basis. I find the twenty-four-hour on and twenty-four-hour off shift the most desirable here.

Clyde H. Pritchard, Chief, Jackson, Mich.: We employ the two-platoon system here. I think the twenty-four-hour on and twenty-four-hour off shift is the better plan.

S. D. O'Connor, Chief, Beaumont, Texas.: We do not employ the two-platoon system here as yet. The men work three days and then have a day off. I believe the twenty-four-hour shift is the better idea.

Defective Wiring Causes Two Deaths at Subway Fire

Two workmen were burned to death in a two-story corrugated iron building used to house construction laborers in Long Island City, L. I. The fire is believed to have been caused by defective wiring. There were two hundred persons in the building at the time and there was a general stampede when the entire crowd attempted to escape at the same time.

Answers to Previous Questions

J. R. Lewis, Asst. Chief, Charleston, S. C.: The department takes every precaution during the Christmas holidays to prevent fires by having firemen make inspections of all buildings in the congested districts, and patrol the principal stores during the shopping season. The men see that excessive rubbish is disposed of to prevent accumulation.

The newspapers cooperate with us by publishing articles on fire prevention and giving advice as to how to decorate. They discourage the use of candles, cotton and other inflammable materials.

Roy Pitts, Chief, Independence, Kans.: We make weekly inspections of all business districts during the month of December to see that inflammable materials, paper, wood, etc., are properly taken care of. Special care should be taken to examine wiring, bulbs, and other decorations in stores and all rubbish should be ordered removed twice daily.

R. H. Buckhorn, Chief Texas City, Tex.: Our city does not carry insurance on any firemen. However, I believe that the city should be required by law to protect both paid and volunteer men. The public could, and should, return the protection the firemen are giving them by insuring the fire-fighters against accident. It appears to me that if the state and national organizations would merge their efforts with the insurance companies and get behind our law makers, we would have little difficulty in passing laws in all states making it compulsory for every city to insure firemen.

Joseph H. Speedy, Chief, Lakewood, Ohio: I regret that I

did not enter the Round Table discussion on the painting of fire hydrants. Much has been said pro and con in regard to the various colors which are being used in painting hydrants.

A number of years ago I was engaged in the vessel brokerage business on the Great Lakes which consisted of managing various fleets of vessels carrying iron ore, coal, wheat and other miscellaneous commodities.

At that time the various fleet owners had the stacks of their steamships painted in many colors in order to distinguish the ownership of vessels when they were passing various reporting points and entering harbors at a distance too great from the observer to note the name of the vessel. Among the several colors employed was aluminum. It was used on the smoke stacks of the immense fleet of ore carrying vessels owned by the United States Steel Corporation. The aluminum stacks could be seen further than any other color—in fact, with marine glasses the color of the stacks was visible when no other portion of the vessel was plainly noticeable. With this result in mind, experiments were carried on with aluminum paint on our hydrants. We found that a high grade aluminum paint could be seen at a greater distance, and was more economical for it had greater covering qualities. It would remain cleaner for a longer length of time than any other color.

A high grade aluminum paint has a bright sheen which can be readily picked up by headlights on apparatus, particularly on resident streets which are densely shaded by trees and shrubbery, on new streets where they are frequently partially hidden by long grass and weeds, and in outlying districts. By reducing the time required to spot hydrants, the time for setting up pumpers is likewise decreased.

Even with the ground covered with snow, the visibility of aluminum painted hydrants is not affected as the sheen and color create a very noticeable contrast. After a long period of years, we have found this color to be very satisfactory for hydrants.

E. F. Henryson, Chief, Elgin, Ill.: Drivers in this department are not covered by insurance against accident. I do consider it a very good plan for cities to provide such insurance for all drivers of apparatus.

J. L. Akin, Chief, Birmingham, Ala.: We do not have any insurance to protect drivers against accident. However, I am of the opinion that it would be an excellent thing for cities to provide such insurance.

John T. Nicolls, Chief, Malden, Mass.: While we do not have insurance to cover drivers against accident I do believe that the men should have this protection. I understand that a bill is now being drawn up by the Massachusetts State Firemen's Association to be presented to the next Legislature covering such insurance.

It is a matter of great importance to all firemen and they should back their legislature committee in their efforts to get the bill through.

Q. & A.—Gasoline Truck Fires, Etc.

(*Continued from page* 1180)

should not exceed 7500 square feet, preferably 5000 square feet. Special provisions may be made for the departments where the nature of the stock requires large floor space and where there is less congestion of both patrons and employees, which would apply to stocks of furniture, carpets, pianos, etc.

Upon the first signal of the alarm, each member of the fire drill company in the district in which the alarm is sounded will immediately cease work and proceed to remove obstructions from the aisles and passageways. They should then form in double lines along each side of the aisle leading to the exit, taking up stations at proper intervals and wherever possible at the junction of intersecting aisles. In assigning stations, the first consideration is to man the main aisles leading to each exit from the fire district and to prevent pushing and overcrowding. As far as possible, the aisle guards will endeavor to effect line formation, in order that the approach to the exit may be as orderly as possible. At all times special consideration should be given women and children.

The stair and exit guards should in like manner endeavor to keep the lines intact and to act quickly in cases where persons may stumble or fall, to prevent trampling.

In the organization of each company there should be designated not less than four of its members to lead the lines in descending stairways and tower exits to the street floor.

Upon the sounding of an alarm in any fire district, the fire drill company in the two nearest districts should assemble and stand ready to render any assistance required. These companies may be used to advantage where the regular exits for the section where the alarm is sounded are exposed or cut off by the fire, by assisting in the formation of lines and leading them to other nearby exits.

When stores are divided into sections cut off by fire walls with standard openings, the drill exercises should be directed to their use in preference to stairways and fire escapes.

Women and girl employees and boys who are not members of the fire drill section in which the alarm is sounded, upon the first signal should be at attention and assemble for line formation. The lines should consist of files of two each. Upon the second fire signal the line should move promptly and orderly at uniform speed, to prevent the touching of any two files. One of the older girls or women should be designated in each department to secure clothing or street apparel from lock or clock rooms.

Assignment of Exits: Under conditions existing in department stores, no regular assignment of exits for departments can be made that would be recognized by the public. Floor managers should designate certain fire exits for each department and as far as possible the drill company should direct the public to these exits. With ordinary fire supervision it is improbable that any fire in a modern department store will expose more than a single floor or section of the building, and under ordinary circumstances there would be no advantage in forcing the public to the use of any one exit, if others equally safe were available.

When exits can be arranged to discharge horizontally they are to be preferred. This may be done when buildings are divided into two or more sections, cut off by fire walls having standard protected openings.

It will also be possible in buildings of this class to provide exits through the roof by which egress may be had to an adjoining section.

Signs indicating location of all stairways, fire escapes and other exits should be displayed in the main aisles throughout the building.

Elevator attendants will remain at their posts of duty and continue to carry passengers until notified by the floor chief or captain. If the fire should expose the elevator shaft, attendants are not to attempt to run their cars.

Answer 4: Hazards in connection with department stores are as follows: Large unbroken floor areas, open elevator and stairwells and especially unprotected lightwells, large quantities of highly inflammable goods so distributed that fire can spread quickly over them, congestion of shoppers and help (particularly during week end and prior to holidays), defective housekeeping, hazards incidental to paint shops, tailoring shops, upholstering shops, packing and similar departments.

Auxiliary fire appliances which should be included in such an establishment are: automatic fire alarm system, either separate or in connection with automatic sprinkler systems; automatic sprinklers; standpipe service, and hand extinguishing apparatus.

To safeguard the lives of employees from fire, they should be thoroughly drilled and should maintain among their members a well organized fire brigade. All employees should be fully instructed in methods of egress from the building, and in addition should be trained to remove or report fire hazards upon discovery. Adequate means of egress are of prime importance in connection with a department store. If fire walls are present, the function of these should be explained to employees so that in the event of an emergency they may be moved from one section of the building to the other, subsequently cutting off the fire area by closing fire doors.

Mobile Firemen Form Drum Brigade

Members of the fire department at Mobile, Ala., elected Chief Gus Rehm as president of the newly formed drum corps, at the organization meeting held at the Matt Sloan Station. Several of the commissioners were present and expressed a confidence that the corps would be of value in advertising the fire department. An attempt will be made to raise seven hundred dollars to equip the thirty men who will form the corps.

Loud Speaker Alarm Tested in La Crosse—Experiments are being carried on in La Crosse, Wis., on a system of receiving fire alarms over the telephone so that firemen will be able to hear the location. According to this arrangement three loud speakers will be installed at various points in the station. When a call comes in announcing a fire, the man on watch pushes down a foot lever so that both sides of the conversation are amplified by means of the speakers. With this system and so many listening in, it is hoped to eliminate possibilities of getting the wrong address.

Ex-Fire Chief McConnell Dead

Bernard J. McConnell, head of the Buffalo, N. Y., fire department for twenty-six years prior to 1918, died at the age of seventy-nine in his home city on December 22.

The Late Chief McConnell, Buffalo, N. Y.

He had seen forty-eight years' service in the fire department and was head of the fire force for twenty-six years. He retired from active duty when sixty-eight years old because of an injury he received while fighting a fire in January, 1908. Later on September 14, 1914, he suffered injuries to his back and head. Nor was that all. In 1906, Chief McConnell was troubled with an infection of the neck.

Chief McConnell joined the fire department on October 1, 1870, and became chief in 1872.

He was a prominent figure in the affairs of the International Association of Fire Chiefs in the well remembered days of twenty-five years ago. He bore a striking resemblance to the former President William Howard Taft, and he had a most pleasing personality. With his death, Buffalo has lost one of its connecting links to the days when horses were relied upon to haul apparatus and men to fires.

Philadelphia Firemen Perform

Before a crowd of 3,500 persons who packed the 108th Regiment Armory, Philadelphia, rookie firemen demonstrated what they had learned at the fire department training school. In the audience was an official from Constantinople, Turkey. There were also 125 chiefs from towns and cities in Pennsylvania, New Jersey, Virginia and even Washington, D. C. The graduation exercises, held December 4, were broadcast through station WCAM, Camden, N. J. Forty-eight men were graduated.

The Philadelphia Fire Department Band of forty pieces played during the entire program, in charge of their leader, Charles E. Corson.

The spectators were arranged in a U-shape so that fire apparatus could drive in and out of the building. First came the Department of Public Safety ambulance which responds to all extra fire alarms. This was followed by the instructor of Fire Apparatus Drivers' School, and Rescue Squad No. 1, which demonstrated the use of many intricate tools.

Chief Ross B. Davis, of Philadelphia, and Sherwood Brockwell, fire marshal of North Carolina, were among the many who spoke during the evening.

The new firemen went through their exercises under the direction of Instructor Anthony McGrann. Chief Davis presented the instructor with a large basket of flowers.

First prize was awarded to Hoseman W. R. Spencer of Engine Co. No. 59, whose average was 94.2, class leader. The prize was a handsome wrist watch, presented by Harry C. Kahn, influential local business man. Second prize, an order for a suit of clothing presented by Hano & Co., was awarded to George Grace.

The exercises ended with the awarding of certificates, and a selection by the band.

EDWARD H. SPRANGERS.

Correction of Fire Loss

In the December 11 issue under "What's Burning," Dubuque, Ia., was credited with a $40,000 fire the week ending December 6. Chief Joe W. Fisher advises that this is an error and that no such loss has occurred.

Three Oaks, Mich., Buys Fire Apparatus—Three Oaks, Mich., has voted to buy a new fire truck.

Beverly Hills to Buy Aerial Ladder—Beverly Hills, Cal., has invited bids for an 85-foot aerial ladder.

Firemen Try to Save Child with Inhalator—For twenty-six hours, Philadelphia firemen attempted to keep up heart action af a child who was stricken with meningitis. The men were unable to save the little girl.

Fire Dangers from Film

(*Continued from page* 1185)

The decomposition referred to has been found due to the fact that the physical structure of cotton, from which cellulose nitrates are manufactured, is such as to make it difficult, during the purification processes, to remove from the cellulose nitrates the very last traces of free acid. Yet if but a minute quantity of free acid remains in the nitrocellulose it reacts to decompose the nitrocellulose, producing as a result more free acid, and these reactions progress autocatalytically with the evolution of heat until a considerable mass of the nitrocellulose is involved and the temperature has reached the point of ignition when fire or explosion takes place. Provision is made in the case of smokeless powder and some other substances produced from cellulose nitrates to reduce or prevent this decomposition by adding to the mass of a neutralizing agent, such as diphenylamine, to remove the free acid products as they are formed, and this procedure has given a measure of protection.

At least seventy-five years ago it had become the established practice in placing long staple pyroxylin, or collodion cotton, on the market to pack it in cardboard cartons and, in this method of packing, the nitrocellulose has been observed to remain for years undecomposed, while if the nitrocellulose in these cartons were transferred to tightly stoppered bottles it soon underwent spontaneous decomposition. Another cellulose nitrate product which has frequently given rise to disasters through undergoing spontaneous decomposition as packed in tightly closed containers is compressed military guncotton. Yet with this, as with the collodion cotton, it has been repeatedly demonstrated that, if the blocks of dry guncotton are freely exposed to the air out of contact with direct sunlight, they keep materially unchanged through years.

Another characteristic of cellulose nitrates little referred to is their capacity to acquire static charges through friction, yet this is very apparent when one runs the hand through a mass of granulated single base smokeless powder. It is easily demonstrated by rubbing a piece of moving picture film when it will attract to itself small bits of paper and other light objects. Many ignitions of inflammable and combustible substances have been due to the development and discharge of static charges originating in friction on moving parts, but experimental demonstration of the phenomena is attended with many difficulties and rarely succeeds. It is significant to find in the newspaper accounts of a recent disaster that observers reported seeing "the first explosion occur in a pile of chemicals near one of the polishing machines" and that the only fatality was that of a man "found unconscious near a film-polishing machine."

Another feature of film disasters is the "nitrous fumes," the brownish-red fumes especially produced during the flameless combustion of the films. The nitrogen oxides as evolved from the decomposing film are NO (or N_2O_2) and NO_2 (or N_2O_4). The NO as set free is a colorless gas, but, on coming in contact with the air, it promptly combines with oxygen from the latter to form NO_2 gas which is brownish-red in color. It is possible that, through the reactions of these nitrogen oxides with the oxygen of the air they encounter, other oxides such as N_2O_3 and N_2O_5, ar also formed in varying proporions. Further the NO_2 reacts with oxygen and water present in the air, or that produced in the burning, and the N_2O_3 and N_2O_5 react also with the water present to form the highly corrosive nitrous and nitric acids.

Though NO is but slightly soluble in water, NO_2, N_2O_3 and N_2O_5, or the acids formed from them, are quite soluble in water, and since NO readily forms NO_2 on contact with air, it is a simple matter to remove "nitrous fumes" from the atmosphere by spraying the atmosphere with water. Furthermore, a proper supply of water will quench fires in nitrocellulose films. Fires actively under way in compressed military guncotton even have been extinguished with water applied to them.

Boone, Ia., Firemen Repair Toys—As is their custom every Christmas, members of the Boone, Ia., fire department repaired broken toys to be redistributed to the less fortunate children.

Ames, Ia., Enjoys Low Fire Loss—During the month of November there were only eighteen fires in Ames a and the total loss for the month was estimated at $150. Of these fires, Chief Morris said that eleven resulted from carelessness.

New Haven, Conn., Starts Officers School—An officers training school is to be started in New Haven, Conn. An assistant chief was sent to the New York Fire College and arrangements were made to have special lectures delivered by professors of Yale University.

On Guard 365 Days of the New Year!

EVERY day, for three hundred and sixty-five days of the New Year, dependable Seagrave Fire Apparatus will be on guard in hundreds of cities offering protection against the ravages of fire.

Back of each piece of this apparatus stands an organization that has been manufacturing high grade Fire Fighting Equipment for fifty years.

Now as the New Year dawns and another year is added to our half century of service, we ask to take this opportunity of wishing a Happy and Prosperous New Year to our friends all over the world.

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NEW HAVEN	KANSAS CITY	LOS ANGELES

PROPOSED IMPROVEMENTS

Larchwood, Lyon Co., Iowa—City contemplating the purchase of a 300 gal. capacity pumper for the fire department.

Ferndale (mail Detroit), Oakland Co., Mich.—Purchase of new piece of fire apparatus has been authorized by City Council. John Bollman, chief of fire department.

Syracuse, Onondaga Co., N. Y.—Board of Contract and Supply calling for bids for two 1,000 gal. pumpers and an 85 foot aerial truck for the fire department, according to reports. Eugene F. Sullivan, chief.

Utica, Oneida Co., N. Y.—Fire Chief Joseph Sullivan recommended the erection of a new fire station in the 13th ward and another in Pine Street, to replace stations 3 and 4.

Watervliet, Albany Co., N. Y.—Fire Chief E. P. Young recommended the purchase of a new piece of fire apparatus. Committee appointed to secure data.

Edenton, Chowan Co., N. Car.—City interested in purchase of new piece of fire apparatus, according to reports.

Hillsboro, Highland Co., Ohio—City Council passed resolution authorizing the issuance of bonds to the amount of $13,500 for the purchase of new fire apparatus.

Ridgefield Park, Bergen Co., N. J.—Reports state Board of Commissioners is contemplating the purchase of an aerial ladder truck.

Germantown, Washington Co., Wis.—Village purchased a Seagrave 600 gal. pumper for the fire department.

Johnstown, Cambria Co., Penn.—Fire Chief Harry Schultz recommended to City Council the erection of new and smaller buildings be substituted for engine houses No. 5 and 8; purchase of new triple combination 1,000 gal. pumper to replace apparatus now used by Engine Co. No. 5; and 12 new fire alarm boxes for replacements and new locations, according to reports.

Mansfield, Richland Co., Ohio—National Board of Fire Underwriters recommended the purchase of additional fire apparatus, according to reports.

La Habra, Orange Co., Calif.—An election is to be held next April to vote on a bond issue for purchase of adequate fire apparatus, according to reports.

RAISES URGED FOR N. Y. MEN OUTSIDE FIRST GRADE RATING

Increases Urged for Officers and Men Not Affected by Recent Pay Boosts Granted at Referendum Vote

By WM. JEROME DALY

AN allowance of $3,434,819 has been requested by Fire Commissioner John J. Dorman for salary increases averaging five hundred dollars each, for members of the uniformed fire fighting force, excepting firemen of the first grade whose salary was increased by vote of the people at the recent election.

His communication also embodied a request for twenty-five additional Inspectors of Fire Prevention at an annual salary of $2,160; increases in the salaries of 125 existing Inspectors of Fire Prevention; a request for two additional medical officers at $5,300 a year each, and the fixation of $2,000 salary for firemen of the 4th, 3rd and probationary grades and $2,500 for firemen of the 2nd grade.

The summary of the requested increases follows:

	From	To
Deputy Chief John Davin, in charge of Brooklyn and Queens	$6,800	$7,300
Deputy Chief Joseph B. Martin	7,800	8,300
Deputy Chief Patrick Walsh	7,300	7,800
30 other Deputy Chiefs	5,800	6,300
Chief Fire Marshal Thos. P. Brophy	6,800	7,300
96 Battalion Chiefs	4,790	5,300
Captain William J. Lennon	4,500	5,000
339 Captains	4,000	4,500
537 Lieutenants	3,400	3,900
128 Engineers	2,920	3,400
24 Pilots	3,000	3,500
8 Chief Marine Engineers	2,920	3,400
8 Marine Engineers	2,920	3,400
Deputy Chief Thomas F. Dougherty	6,800	7,300
Chief Medical Officer	5,800	6,300
8 Medical Officers	4,790	5,300
5 Chaplains	1,980	2,400
4th, 3rd and probationary grade firemen	1,769	2,000
2nd grade firemen	1,980	2,500

In his request for twenty-five additional Inspectors of Fire Prevention, the Fire Commissioner wrote to the Mayor as follows:

"I believe it necessary at this time to recommend an increase in the number of inspectors of the Fire Prevention Bureau. Industries are more hazardous and large buildings with their complicated construction and the necessity for protected care requires a larger personnel so that the inspection work may be done with the greatest degree of efficiency."

The Fire Commissioner appended to his communication a statement outlining the duties of the inspection forces of the Bureau of Fire Prevention. The request was referred to the Director of the Budget.

American Pumper Tested in Siam

Large crowds of curious and wondering natives of Bangkok, Siam, assembled at the Pramaru Grounds to watch a test of the Barton fire pump that is attached to the front of an automobile and is operated by the automotive equipment.

The persons who assembled made the test seem somewhat life a festive holiday. The firm of Suphan Phanich Co., Ltd., are the local agents. The Barton pump delivered a strong stream, and the performance of the pump pleased the officials in charge. An order was placed for several Barton pumps, following the demonstration.

Test of Pumper in Bangkok, Siam

Left, native firemen operating the Barton pump that it attached to the front of an automobile, and right, a portion of the crowd that assembled to watch the demonstration.

New Haven, Conn., Awaits Pumpers—Delivery of two new Mack pumpers for New Haven, Conn., is expected within two months.

Monroe, Mich., to Vote on Apparatus—At a special election scheduled for January 27, Monroe, Mich., will vote on the question of raising $5,000 for the purchase of fire apparatus. At present the village is without fire protection.

Wadsworth, O., Limits Outside Aid—In the future, Wadsworth, Ohio, will only furnish outside aid to those communities that have signed formal contracts. The village is also considering the purchase of special apparatus to be used for answering outside calls.

CONVENTION DATES

Jan. 18-19, 1930—SOUTHERN CALIFORNIA FIRE CHIEFS' CLUB. 3rd Annual Convention, Avalon, Catalina Island, Cal. Secretary-Treasurer, Chief G. E. Zimmerman, Coronado, Cal.

May 12 week of, 1930—NATIONAL FIRE PROTECTION ASSOCIATION. 34th Annual Meeting, Atlantic City, N. J. 1931 Convention probably to be held in Toronto, Can. Managing Director, Franklin H. Wentworth, 60 Batterymarch St., Boston, Mass.

May 14, 1930—DEL-MAR-VA. VOLUNTEER FIREMEN'S ASSOCIATION. 1st Annual Convention, Cambridge, Md. Secretary, J. Emory Parks, Cambridge, Md.

May 26-29, 1930—KANSAS STATE ASSOCIATION OF FIRE CHIEFS, STATE FIREMEN'S ASSOCIATION and FIRE SCHOOL. Respectively, 14th, and 43rd Annual Convention and 2nd Annual Fire School, Salina, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan. Secretary Firemen's Short Course Committee, E. J. Stewart, Kansas Insp. Bureau, 701 Jackson St., Topeka, Kan.

June, 1930—EASTERN ASSOCIATION OF FIRE CHIEFS. 3rd Annual Convention, Baltimore, Md. (Exact date to be decided later.) Secretary, Ex-Chief T. Howell Johnson, Room 602, Chamber of Commerce Bldg., Newark, N. J.

June 2-6, 1930—AMERICAN WATER WORKS ASSOCIATION. 50th Annual Convention, Hotel Jefferson, St. Louis, Mo. Secretary, Beekman C. Little, Rochester, N. Y. Offices of the Association, 29 West 39th Street, New York City.

July 29-31, 1930—INDIANA FIREMEN'S ASSOCIATION. 13th Annual Convention, Lafayette, Ind. Secretary, Clem Smith, Fire Headquarters, Terre Haute, Ind.

Sept. 9-11, 1930—ILLINOIS FIREMEN'S ASSOCIATION. 43rd Annual Convention, Peoria, Ill. Secretary, Assistant Chief Roy W. Aslip, Fire Department, Champaign, Ill. Exhibits, Chief Albert Herring, Fire Department, Murphysboro, Ill.

Sept. 24-25, 1930—MISSOURI STATE FIREMEN'S ASSOCIATION. Annual Convention, Trenton, Mo. Secretary-treasurer, M. J. Mulvoy, St. Louis, 3500 S. Grand Boulevard, St. Louis.

A Happy New Year

TO those who have helped make this our most successful year, we extend the Season's Greetings and wish them a Happy and Prosperous New Year.

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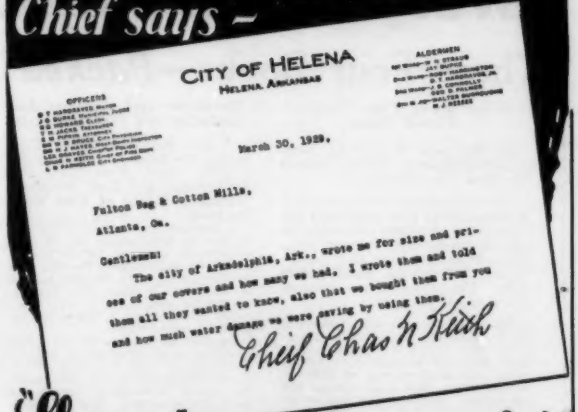

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March 30, 1929.

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Chief Chas N Kirk

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Detailed description of the proper procedure in fighting fires: 1. Size-up; 2. Calling of help; 3. Saving of life; 4. Covering exposures; 5. Extinguishing fire; 6. Overhauling. How to test motor fire apparatus. How the following types of fires should be fought: Large department stores, large hotels and rooming houses, large area residential fires, combination stores and apartments, motion picture film exchanges, tall office buildings, wholesale grocery stores and warehouses, group building fires, theatres, schools, factories, etc., and considerable other data.

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FALSE ALARMS

—Drawing by "Art" Espey

A Comedy of Errors

During the wee small hours of the morning, an Elmira, N. Y., resident, wending his way homeward, thought he saw a fire. To verify his vision, he climbed a nearby telegraph pole. When he was convinced that there was a fire, he descended from the pole on which was mounted a fire alarm box. The hero then dashed across a bridge and ran three blocks to report the matter to a traffic cop who turned in an alarm from a box several blocks from the location of the fire.

AN EXCEPTION

"Are all the nuts that chase fire engines up here called 'buffs'?"

"Well, one dropped an extinguisher on my foot today."

"What of that?"

"That one was called something else."

Most of us could live quite comfortably, and maybe save a little, on the money we tell others we make.

LUCKY FELLOW

Even at Christmas time, the fireman realizes that there are better paid positions than that of fire-fighting. That is why Mike went mumbling that Ted Andrews had all the luck. And when asked why, replied:

"He's got a wife and a cigarette lighter—and they both work."

The only way a youngster can break windows without being spanked is to wait until he grows up and gets a job as a fireman.

THERE WAS A REASON

A fire station in a residential district is quite an asset for the boys of the neighborhood. When unmolested, they are sure to congregate near the open door. On the other hand, the men take great pride in watching the boys develop. It was surprising, therefore, to notice one youngster throwing stones at another. The captain came out.

"Why are you standing over there throwing stones at that poor little boy?"

"Because I daren't go any closer, mister. He's got whooping cough."

As we grow older we realize that Santa Claus doesn't really come down the chimney; he just enters through a large hole in the pocketbook.

ONE THING AT A TIME

The city had awarded contracts for two department buildings, and work was started at once. The officers who were to be stationed there when the buildings were completed, took a certain pride in the construction.

The two officers chanced to meet and then compared notes.

"The superintendent that is putting up my place is a fine fellow. He whistles while he works."

You're lucky," replied the other. "Mine only whistles."

New Yorkers will stand for anything but a woman in a trolley car.

HIS GOOD POINTS

You have probably heard of a fire house with a dog—this one housed a parrot with a highly colored and descriptive vocabulary. All would have been well if the bird was removed on open-house day. But a lady who had heard the bird express himself, complained to the chief:

"You should have that parrot taken out. He swears too much."

The chief who was noted for his subtle humor, replied:

"Still, madam, he neither smokes nor drinks."

Any old sort of a rattle will quiet a young lady, but when you get a grown up one, she wants an auto.

UP WITH THE TIMES

Tom had been doing theatre inspection work for almost a week at the Palace Theatre. Perhaps it was because he was unusually good looking, or there may have been the uniform appeal, but at any rate a girl in the cast had a bad crush on him.

His buddy did not like the way things were developing.

"Tom, you better watch yourself. I can see right through that chorus girl's intrigue."

"I know, Old Timer, but they all dress that way nowadays."

"And what was your father's last words?"

"There were none. Mother was with him to the end."

FATHERLY LOVE

Mike had a son who evidently had been spending too much time in the station where his father was assigned.

The boy was bad one night, and his mother put the child to bed, supperless.

"Willie, say your prayers," she said.

"I won't."

"Don't you want to go to heaven?"

"Nah. I'm going with papa. Us men has got to stick together these days."

Outlaws are a menace to society, but in-laws are worse.

MODERN YOUTH

Much has been said and written concerning modern youth.

As a community enterprise, the Alert Company erected a huge Christmas tree on the apparatus floor, and one of the members impersonated Santa Claus. All of the children from the district were invited to meet Santa and to receive a gift. As one urchin approached, the department Santa asked:

"And what is your name, my little man?"

"Gee, what a head you have! Don't cha remember—I told you my name last year."

When a mule is kicking, he isn't pulling.

PEACE ON EARTH

There is always something to disturb village life. When the village took steps to organize a fire department band one could hear the members practicing at most any hour. That is a preface to the statement made by Jackson that his new car did not cost him much for his cornet was taken in as trade.

"I didn't know they would take a cornet as part payment on a car," remarked his friend.

"Well you see, they don't usually, but the salesman is a near neighbor of mine"

"At last," murmured the crowd in the dormitory as the light across the street went out, "now we can sleep."

Then there was the girl who was so pleased with her wedding she could hardly wait for the next one.

FEMALE WORSHIP

A traveling evangelist thought the fire department was a virgin field, and accordingly he visited one here shortly after most of the men on the off shift had checked out. However, he approached a fireman with his hat and coat on.

"Young man," he asked in a most respectful tone, "do you attend a place of worship."

"Yes sir—I do," was the answer. "In fact, I'm on my way to see her now."

There was one fellow who got a lucky break during the recent stock crash. He died just before the market broke.

The Small City Fire Department

(*Continued from page* 1170)

form. When a new man is enrolled as a member of the fire department, he should be required to sign these rules in duplicate, one copy of which is filed with the records of the departmnt, and one copy retained by him for his information. This is to avoid any misunderstandng by the new recruit as to what his duties are.

Methods of a Volunteer Drill School

As the city develops, and it becomes necessary to purchase more apparatus and employ more regular men, the need of a drill school becomes apparent. In the past the custom has been to send some member of the department to attend a drill school in some larger city, that has a reputation for turning out efficient and well-trained firemen. This man, upon coming home, then assumes the training of the department. This plan is good. However, the metropolitan fire departments have many problems that never come up in the small city, and consequently their drill school embraces a lot of work that can never be used by the smaller department.

Several cities have recognized this and have tried the following plan: The services of a drill master from some larger department was secured and brought right into the local department and there instituted a drill school. This plan has the double advantage of placing the instructor actually in touch with local problems, thereby enabling him to give only such instruction as is really needed, and that of being able to instruct and drill all members of the department, including the call men. A period of thirty days can well be given to such a school. In a mixed fire department three sessions daily are desirable—two day sessions for the regular men and one night session for the call men or volunteer. To encourage their attendance, it is well to pay them a small sum for attendance at each session. The results from such schools in the cities having tried it have been very satisfactory.

In the preparation of the fire department for fighting fires, it is necessary to do a lot of coaching. Local conditions in the business district, the location and efficiency of fire hydrants, the size of water mains, and the suitability of hydrants for pumper service, demand a lot of thought and study by the executives of the fire department. These should be made topics for discussion in the weekly drills, and the whole department should be organized into companies with definite duties to perform. A department can be so organized that its performance can be likened to a machine, each company of which is an integral part thereof, and all company members made to feel that they are individual parts, the co-operation functioning of which is necessary for the successful performance of fire duty. A general layout and rules of procedure for fires in the business district should be formulated, and also for residence district fires. These, posted in station and schoolroom, become the basis or foundation around which your fire-fighting machine is built. It is essential that a fire department be coached, drilled and trained in some prearranged plan of action in combatting fires. *Teamwork in the Fire Department is the keynote of successful fire-fighting.*

The following organizations and working schedule and general layout and rules of procedure at business and residence fires, which has been adopted by the fire department of Blackwell, Okla., is herewith given as an example of the foregoing.

Row of Stores Destroyed in New York City

Damage estimated at $100,000 resulted from a fire that wiped out a row of brick stores on West 207th street in New York City, and drove more than one hundred tenants from adjoining tenements to the streets. The fire did not damage the apartment houses.

A further object is to show what can be done in a city of from ten to fifteen thousand people, with a relatively few regular firemen, in connection with a well-disciplined part-paid crew.

Blackwell Fire Department Organization and Working Schedule

Working Units	A Shift	B. Shift
Asst. Chief	A. E. Cook, First Asst. Chief	G. E. Gebelein, Second Asst. Chief
Company A	(Asst. Chief Drives Truck A)	Don W. Jones, Captain
Company B	C. W. McDaniel, Captain	(Asst. Chief Drives Truck B)
Company C	Herbert Hale Captain	E. G. Thomas, Lieutenant
Company D	A. E. Wilson, Lieutenant	I. O. West, Captain

Order of Response of Companies to the Various Alarms:

Business Dist.	Res. Dist.	Still Alarms	Emergency
Cos. A B and D	Cos. A and C	Co. D	Co. B

Company Personnel

	Members	Rank	Drill Nights
Company A...	Don W. Jones Yale L. Taplin William Bridges Emmett Gillespie R. J. Manning	Captain Lieutenant	1st and 3rd Tuesdays
Company B...	C. W. McDaniel P. E. O'Mera R. R. Royce Arva Wright R. J. Harlan	Captain Lieutenant	2nd and 4th Tuesdays
Company C...	Herbert Hale E. G. Thomas Alex Butler Carl Taton Lloyd Eckert	Captain Lieutenant	1st and 3rd Tuesdays
Company D...	Ivan O. West A. E. Wilson H. H. West D. V. Harlan Lewis Cross	Captain Lieutenant	2nd and 4th Tuesdays

In the months in which there are five Tuesdays, all Companies will report for drill on the fifth evening; drill period, 7:15 to 9:15 P. M.

Business District

The territory between B Street on the east and Fourth Street on the west, and between Kansas Avenue on the north and Ferguson Avenue on the south, is hereby designated "Business District." In addition, the Hazel-Atlas Glass Company, Leslie Sanitarium, Blackwell Hospital and all school buildings will be classed as business calls.

J. E. Taplin, Chief Blackwell Fire Department.

General Layout and Rules of Procedure For Fires in Residence District, Blackwell, Oklahoma

1. Engine Company A will proceed directly to the fire and use hand pumps, booster pumps, or assist in getting hydrant stream in service, as occasion may require.
2. Engine Company C will follow (Officer D riding rear end), lay hose line from the most practical hydrant, and put hydrant stream in service.
3. If the service already established proves inadequate, Engine Company C will lay a second line to a second hydrant, and make one of the following hookups, whichever in the judgment of the chief officer will be the best suited to the conditions.:
   A. Set Engine C as a pumper at hydrant:
   B. Connect line to Engine A with the view of siamesing both hydrant lines into pump at the fire;
   C. Siamese both hydrant lines into one master stream.
4. Plugmen, after turning on water, will proceed directly to the fire. Officer D, who acts as plugman on the first line, will proceed to the fire, after the line has been charged, and assist in any manner the chief officer may direct.
5. The Captain of Engine Company A upon reporting to the fire will assume command of his company. In his absence the Lieutenant will command.
6. All members of Engine Company A, Engine Company B and Engine Company C will report for service at all fires in the residence district. All members of Ladder Company D will report at Fire Station to serve as a reserve company until those on fire duty return to the station and the apparatus is re-equipped for service.
7. Salvage operations at residence fires shall be under the direction of chief officer D, and men from companies shall be assigned for this work by the chief officer.
8. All fire calls from Blackwell Heights will be answered by Engine Companies A and B.

General Layout and Rules of Procedure for Fires in the Business District

1. Engine company A will proceed directly to the fire and use hand pump, booster pump, or assist in getting hydrant stream in action as occasion may require.

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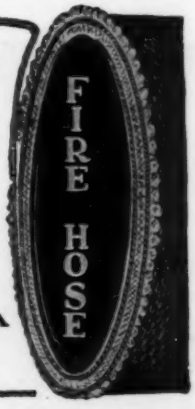

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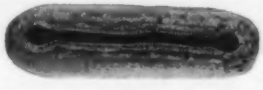

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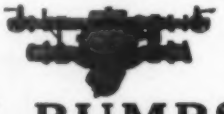

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2. Engine company B will follow, (officer C riding rear end) lay hose line from the most practical hydrant, and put hydrant stream in service.
3. Engine company B will then lay a second line, and place pump in service at a second hydrant.
4. If the service already established proves inadequate, Engine company A will lay a third line from the fire and connect to engine B. Returning to the fire Engine company A will then lay a fourth line from fire to the hydrant where first line is connected, set the pump and place both lines in service as pump streams: unless in the judgment of chief officer it would be better to lay a fourth line to a third hydrant and put pump in service there.
5. Plugmen after turning on the water will proceed directly to the fire. Officer C who acts as plugman on the first line, as soon as line is charged will assist Ladder company D in their duties at the fire.
   Company C will report at fire station to serve as a reserve company until companies on fire duty return to station and the apparatus is re-equipped for service.
8. Ladder company D will park truck so that equipment is easily accessible, and in a position that will not interfere with the movements of companies A and B as outlined above.
   Officers and members of this company will be ready at all times to erect ladders and furnish equipment required by the other companies.
   Salvaging operations and overhauling at business fires shall be under the supervision of this company. It shall be their duty to see that contents of buildings are as well protected from water damage as equipment will permit and in no case shall a building be left until every precaution has been taken to prevent further water damage to building or contents.
9. It shall the duty of chief officer to transfer from other companies such men as company D may require in overhauling work; also to transfer from one company to another such men as may be required to efficiently perform the operations outlined.

J. E. Taplin, Chief
Blackwell Fire Department

Fostering Fire Prevention

While the organization and discipline of a department of this character are of first importance, there are other activities that are falling under its supervision. Foremost of these is fire prevention. While departments must be ready at all times to respond to the call for the battle of the flames, yet the time is rapidly coming when their major activity will be directed toward the prevention of fire, and no fire department, regardless of how small it is, will be complete without giving a major part of its efforts in this direction. Inasmuch as one half day of this convention has already been given to this topic very little can be added in this paper. However, a new fire prevention activity inaugurated in the city which the writer has the honor to represent, might be of interest.

A luncheon club similar in organization to other civic clubs, its membership being composed of a representative from all business and industrial concerns of the city, and meeting twice a month, has been organized. The members are preferably employes of the firm which they represent. The club name, "Ignus Inimici" (Latin for Enemies of Fire), was selected with the view of making "Fire Prevention" its major activity. Officers elected and committees named, permit this club like most other civic clubs to have entertainment programs of interest to its members, the only reservation being a fifteen or twenty-minute period devoted to the study of some phase of fire prevention. One meeting will perhaps consider the hazards and contributing causes of fire in drug stores, and members representing such will participate in the program. Other meetings can take up other class risks, such as filling stations, lumber yards, cotton gins, etc.

Selling the Fire Department to the Public

In conclusion, the last but by no means the least important activity of a modern fire department is "Selling itself to the public." Regardless of how good the personnel of the department may be or how well it is equipped and disciplined, unless the public knows your thoughts, ambitions and plans, it will not give the department full credit for its worth. The sooner your citizenship can be relieved of the idea that the fireman's job is a lazy man's job, and that only men with no ambition will take such a job, the better. They must be made to realize that firemanship is a profession, and as such is entitled to the respect and remuneration of other trades and professions requiring a similar amount of preparation. It is strictly up to the department to educate its public along this line. However, a guess is to be hazarded that if the things suggested in the foregoing article have been done in a thorough and conscientious manner, a long step will have been taken in this direction. In addition, no opportunity should be lost to appear before the schools, civic clubs, chamber of commerce, to promulgate the problems, the plans and the ambition of the department. Even though the average fireman cannot always present his views in public speech, his mere presence, preferably in uniform, is meetings of a public nature, helps in this educational program.

To the tongue-tied and self-conscious fireman there is always one ready and willing medium for the publication and spreading of educational ideas to the public—that is your local newspaper. They will always be found ready and willing to co-operate with the fire department in any program for the beterment of the community. The chief and officers can always call in a reporter and, with his assistance, get their views before the public. Never neglect an opportunity to give your city paper items of news on fire department activities. When all these things have been done and each individual member has done his utmost to further the best interests of the department and the citizenship which it represents, an enviable position will have been reached, and the public will unreservedly accord the honor and trust which is the fire department's due.

(From a paper read before the annual convention of the Southwestern Association of Fire Chiefs at Texarkana, Ark.-Tex.)

New Law Will Curb Arsonists

(*Continued from page* 1174)

the banks of the state organized squads to protect their institutions and to bring about immediate pursuit of robbers. Bank robberies in this state have decreased to a very marked extent as a result. This is a splendid example of what competent and live local squads can do when organized for a definite purpose. I am quite sure that the local arson squad can do equally as well.

Our department will be fully reorganized very shortly. I feel that the model arson law will enable us to make a decided reduction in the fire loss of this state. Last year we showed a reduction of more than $2,000,000 while we were still contending with the handicaps of the old law. I believe the future holds out promising prospects if we all cooperate, as we have done in the past, and if we take full advantage of the opportunity which the new arson law provides.

In closing, it might be well to say a word about the work of arson squads. A few of the squad members have made inquiry as to their authority. In practically all cases the local chief of the fire department heads the squad. Section 6 of the Fire Marshal law amply takes care of the authority, as it provides that the State Fire Marshal and the chief of the fire department of every city or village in which a fire department is organized, and the mayor of every incorporated village or town in which no fire department exists, and the township clerk of every organized township without the limits of any organized village or city, shall investigate the cause, origin and circumstances of every fire occurring in such city, village, town or township, by which property has been destroyed or damaged and shall especially make investigation as to whether such fire was the result of carelessness or design.

This, in my opinion, clearly demonstrates that any fire chief, mayor or town clerk has the same authority to investigate the cause and origin of fires as has the State Fire Marshal or deputy state fire marshals.

(From a paper read before the annual convention of the Illinois Firemen's Association, at Joliet, Ill.)

Wren Heads Montreal Chiefs' Club

Chief William Wren of Westmount was elected president of the Police and Fire Chiefs' Club, Montreal district, at the annual meeting held in Montreal, Canada. Hector Cadieux, chief of the Canadian Pacific Railway Investigation Department, was elected first vice-president and Colonel E. Williams, chief of the Montreal Harbor Commission Police was elected second vice-president. R. N. O. Harrington, chief of the McColl-Frontenac Oil Co., Ltd., was re-elected honorary secretary-treasurer.

A vote of thanks was extended to Raoul Gauthier, chief of the Montreal Fire Department, for the excellent work during the past year.

Chief Harrington read a report covering the activities of the club for the year and the resume showed that the finances were in sound condition.

Norristown, Pa., Delays Apparatus Purchase—The purchase of apparatus for the Good Will company of Norristown, Pa., will be set aside for several months.

Kansas City, Kans., Has New Station—Members of Company No. 6, Kansas City, Kans., moved into their new fire station erected at a cost of $34,500 on the site of the old house. Since May 9 the men have occupied temporary quarters. Two pieces of apparatus are housed and the station has a complement of ten men working on two shifts.

FIRE DEPARTMENT ACTIVITIES

Nogales, Ariz., to Buy Apparatus—Nogales, Ariz., is to purchase a new fire truck.

Henderson, Pa., Receives Pumper—A Seagrave pumper has been delivered to Henderson, Pa.

Pumper Delivered to Peekskill, N. Y.—A Mack pumper has been delivered to Peekskill, N. Y.

Corona, Cal., to Buy Small Pumper—A small size pumper will be purchased for about $3,000 for Corona, Cal.

Medford, Okla., Expecting Apparatus—Medford, Okla., is expecting delivery of new fire apparatus.

Apparatus Delivered to Wyantskill, N. Y.—Sanford fire apparatus has been delivered to Wyantskill, N. Y.

Mare Island to Buy Fire Apparatus—Bids have been invited by the Navy Department for supplying fire apparatus for Mare Island, Cal.

Oceanside, Cal., to Erect Fire House—Bids have been invited by Oceanside, Cal., for the construction of a fire station.

Fire House Destroyed in Buena Park, Cal.—Two pieces of fire apparatus and the fire house was destroyed by fire in Buena Park, Cal.

Dallas, Tex., Adds Eight Men—Effective December 1, eight men have been added to the Dallas, Tex., fire department. Better protection will be given to East Dallas.

Hampton, Va., Urged to Make Survey of City—T. Alfred Fleming, of the National Board of Fire Underwriters, urged that a fire survey be made of Hampton, Va.

Livingston County Planning Convention—Plans are being made by the Livingston County Volunteer Firemen's Association that will be held in New York state next summer.

Car Bought for Steubenville, O., Chief—Steubenville, Ohio, has opened bids for supplying a new car for the head of the fire department.

Manchester, N. H., Has New Pumpers—Two new Ahrens-Fox pumpers have been delivered to Manchester, N. H., one of 750 gallons and the other of 1,000 gallons capacity.

Sandusky Delays Pumper Purchase—The council of Sandusky, Ohio, has delayed action on the purchase of a new pumper.

Milford, Conn., to Purchase Pumper—Milford, Conn., will soon award a contract for supplying a 750-gallon pumper. Six bids have been received.

Firemen Hurt Speeding to Fire—Seven persons were hurt when two fire companies in Reading, Pa., speeding to a fire, crashed. One machine was hurled over the curbstone and the other snapped a telephone pole and then struck a tree.

Apparatus Housed in Ardmore, Pa.—A new aerial ladder has been placed in service in Ardmore, Pa. There was dancing in the fire house in the evening, and refreshments were served.

Holdredge, Neb., to End Borrowing—The city council of Holdredge, Neb., has voted not to permit material to be taken from the fire house or apparatus for other than fire department purposes.

Rochelle Park, N. J., to Buy Pumper—Rochelle Park, N. J., is considering the purchase of a 500-gallon triple combination pumper and a city service truck, both not to exceed $12,250.

Poughkeepsie Plans for Fire Alarm Office—Bids were opened in Poughkeepsie, N. Y., on the construction of a new fire alarm building that is to be erected at the rear of the Board of Health Building.

Dr. H. E. Carney Killed by Train—Dr. H. E. Carney, fire fan of Monroe, La., was killed when a passenger train struck the car in which he was responding to a fire. He was held in high esteem by members of the fire department.

Niles, Ohio, to Have New Station—The council of Niles, Ohio, is considering the construction of a fire station on the east side. Such fire protection is necessary because trains frequently cut off access to that district.

La Crosse, Wis., May Have 24-Hour Shift—The Fire and Police Commission of La Crosse, Wis., is considering the inauguration of a 24-hour shift working system. At present the department is working on 12-hour shifts.

Providence, R. I., May Buy Apparatus—A resolution has been introduced in the Council of Providence, R. I., to provide $32,500 for the purchase of a squad wagon and equipment, and a 75-foot aerial ladder.

Plans Made for Protection of Hill District—Plans have been made for the protection of the Contra Costa Hills, including the municipalities of Oakland, San Leandro, Hayward, Cal., and other East Bay cities.

Denver Opens Fire Station—A new fire station at W. Colfax Avenue and Ninth Street, Denver, Col., has been formally placed in service. A public reception was held in the evening.

Plans Made for San Antonio Station—Plans have been drawn for a new fire station to be erected in San Antonio, Tex. The house will cost $27,000 or $2,000 more than was spent on the other fire houses.

Easton, Pa., Firemen Celebrate—A dinner was arranged in Easton, Pa., to mark the fiftieth anniversary of the formation of a paid fire department. There were thirty-four men present who started the original paid fire force.

Apparatus Delivered to Bangor, Me.—A McCann fire apparatus manufactured in Portland, Me., has been delivered to Bangor, Me. It is a 750-gallon pumper fitted with a booster tank and the usual complement of ladders and accessories.

Cowlitz County Firemen Hold Meeting—The Cowlitz County Firemen's Association were guests of Kalama, Wash., where a regular meeting was held. Short talks were made by Chief Clarke of Longview and others.

Garwood, N. J., to Buy Apparatus—Garwood Borough, N. J., has purchased Seagrave apparatus, consisting of a 750-gallon pumper with a 100-gallon booster tank and full ladder equipment.

Auburn, N. Y., Has New Pumper—Auburn, N. Y., is now using the new 1,000-gallon Mack pumper that was purchased to replace the one destroyed during the Auburn Prison riots during last July.

Lewistown, Pa., to Have New Fire House—A new fire house will be erected in Lewistown, Pa., for the Brooklyn fire company. The building is to cost $80,000 and contracts for the work have already been awarded.

Milford, Conn., Orders Apparatus—The Board of Fire Commissioners, Milford, Conn., has ordered a Maxim 1,000-gallon pumper for the protection of Myrtle Beach. This purchase was in accordance with a recommendation made by the New England Fire Insurance Exchange.

Temple City, Cal., Considers Protection—A meeting was held in Temple City, Cal., which was attended by many communities, to consider the matter of fire protection. At present Rosemead, Wilmar, Garvey and Temple City are without fire departments of their own.

Syracuse, N. Y., Honors Tenth Anniversary—Seventy-four of the seventy-six men who were appointed members of the fire department, Syracuse, N. Y., ten years ago, arranged a theatre party and dinner and had a few city officials as their guests.

Bids Rejected in Little Rock, Ark.—The city council of Little Rock, Ark., refused to accept the recommendation of the Board of Public Affairs to purchase nine pieces of fire apparatus for $86,200, and returned the bids received back to the board for further recommendations.

Fort Smith Defeats Bond Issues—Four proposed bond issues that would have provided improved fire department facilities for Fort Smith, Ark., were defeated: $279,000 for the purchase of fire equipment, repairing and remodeling fire engines houses and so forth.

Johnstown, Pa., Firemen Ask for Increase—Members of the Johnstown, Pa., fire department have requested that the city council grant them pay increases. The average pay for firemen is now $155 a month. There has been no change in the wage scale since shortly after the close of the World War.

More Texas Towns Standardize Threads—Fifteen additional towns in Texas have converted their hose threads to the National standard. They are Baird, Goree, Haskell, Harmleigh, Merkel, Roby, Rochester, Roscoe, Rotan, Rule, Snyder, Sweetwater, Throckmorton, Trent and West Virginia Place.

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75 Pumping Cars, Standard.
76 Pumping Cars, Foam.
77 Pumps, Fire Apparatus.
78 Pumps, Fire Service, Stationary.
79 Pumps, Portable for Fire Protection.
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82 Reviving Apparatus, Oxygen.
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94 Sprinkler Systems, Automatic, Foam.
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97 Steam Fire Engines.
98 Tarpaulins & Fire Blankets.
99 Tetrachloride Chemicals.
100 Thawing Equipment, Hydrant.
101 Tires, Fire Apparatus, Pneumatic, Solid, Cushion and Non-Skid.
102 Tractors.
103 Traffic Clearing Systems.
104 Triple Combination Pumping Cars.
105 Uniforms.
106 Water Towers.
107 Wheels, Cushion.
108 Whistles, Fire Alarm, Compressed Air
109 Whistles, Fire Alarm, Steam.
110 Whistles, Fire Apparatus.
111 Wrecking Trucks.

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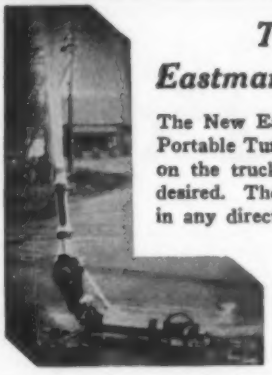
For Information on Any Equipment Not Listed, Write on This Page or Use Separate Sheet 12-25



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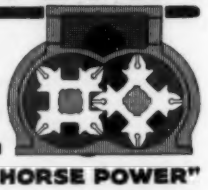

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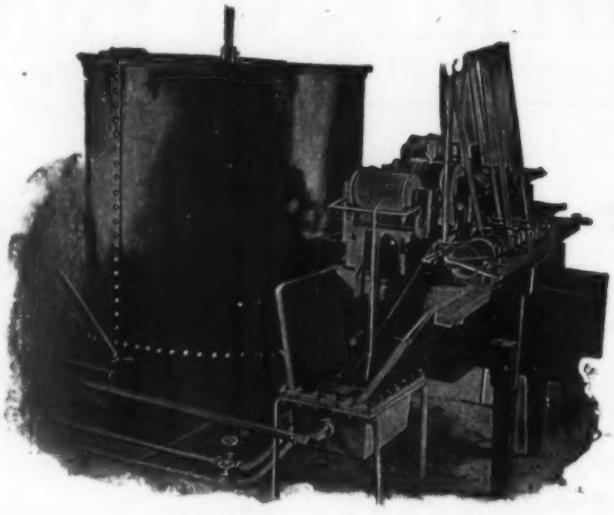

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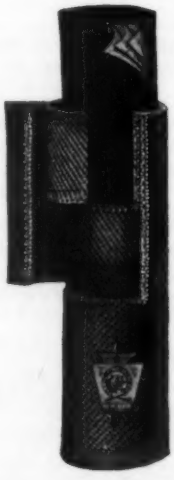

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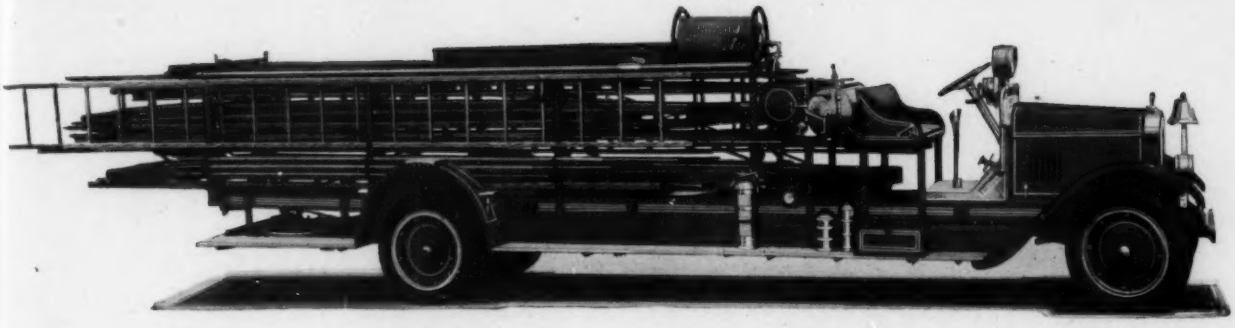
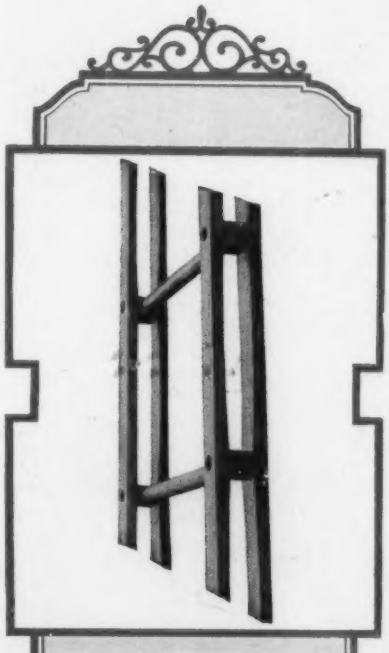


Safe Ladders



Note the effective simplicity of Pirsch Trussed Ladder construction. Bolts passing through both sections of the side rail and square ends of rung hold rung firmly in place. By removing these bolts a new rung can be inserted quickly and easily. This ladder can be climbed on either side.

PIRSCH
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